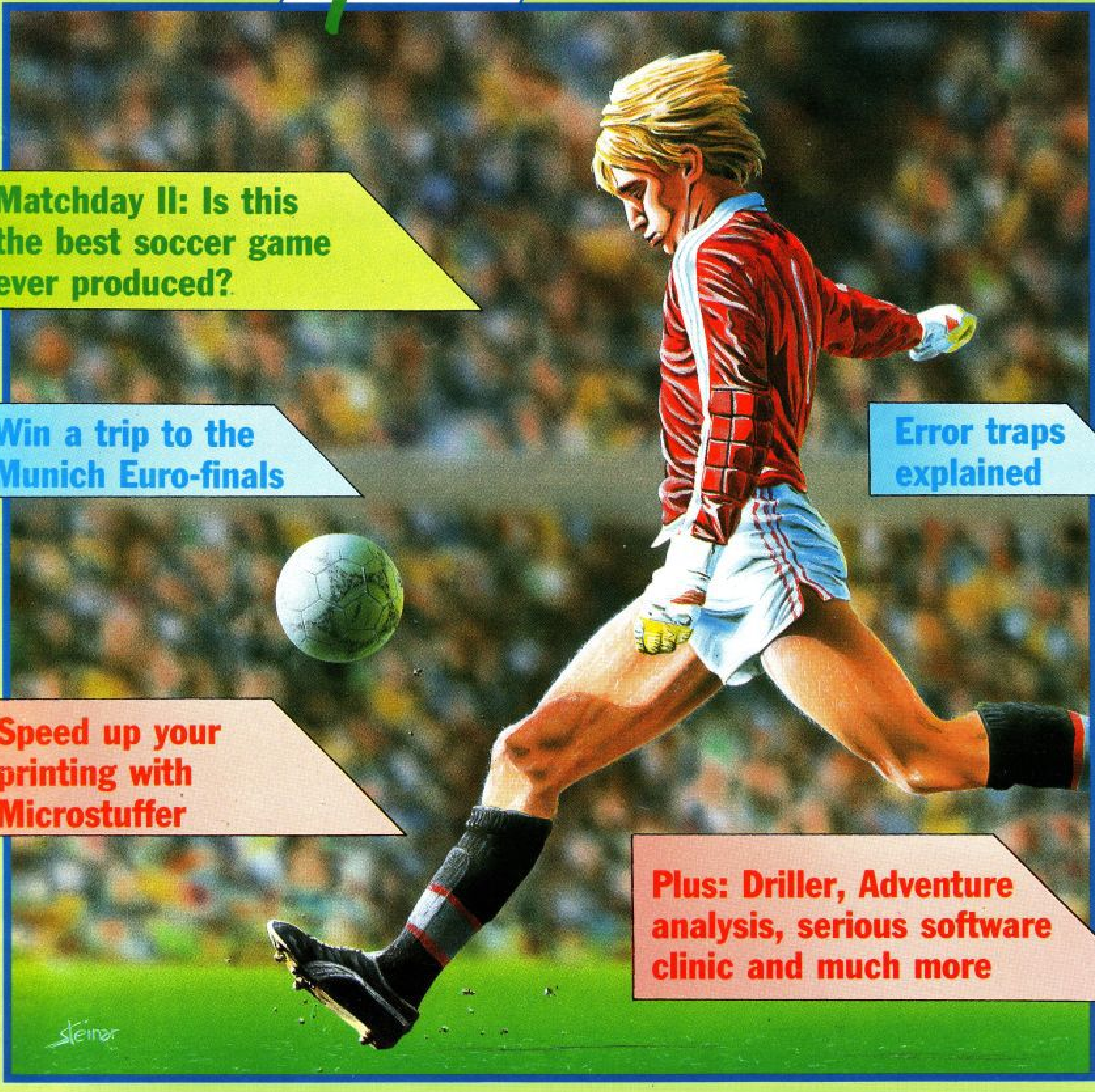
February 1988 £1.25

# AMSTRAD Computer User



Matchday II: Is this the best soccer game ever produced?

Win a trip to the Munich Euro-finals

Error traps explained

Speed up your printing with Microstuffer

Plus: Driller, Adventure analysis, serious software clinic and much more

**The Official Amstrad Home Computing Magazine**

Norway NOK 20.00 Spain 300 Ptas Turkey 1650 TL Denmark Kr. 31.00 New Zealand NZ$4.95 Rec.

# Half a dozen steps to the right decision.

*When you've seen one printer you really haven't seen them all. That's why, when you're trying to choose your first or your next, you really need all the help you can get. Here are a few steps to get you started.*

**1 Compatibility.** You needn't worry about matching any of our six 9-pin printers with your present system. A simple slot-in interface means that any

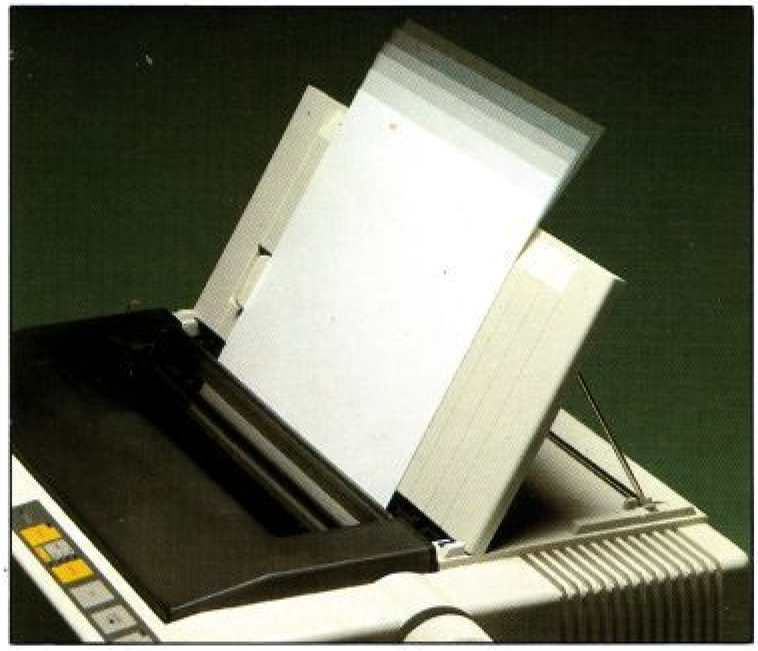


Star printer can be used with virtually any terminal or PC set up. And, equally important, the software command sets are switchable.

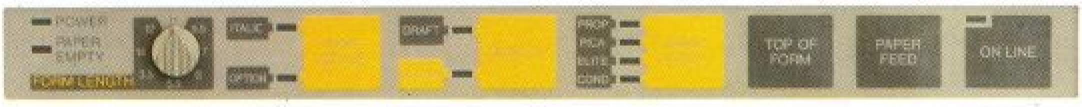
**2 Value.** Getting more doesn't mean you have to pay more. All our printers are proof of that. Whatever your budget, the Star 9-pin printers start from just £248 for the NL-10 going up to £589 for the NR-15.




**3 Simplicity.** The Front Control Panel on all Star business printers gives you total control at the touch of a button. Selecting draft or Near Letter Quality printing, print pitch, margins and paperfeed control are sheer simplicity. No mess, no fuss and no more fiddly DIP



switches for all your usual daily needs. All our machines have semi-automatic single sheet feeding too. Simply drop your page into the top, press a lever,




and the printer advances it to the correct position ready for printing.

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A division of Star Micronics Co., Ltd., Japan.

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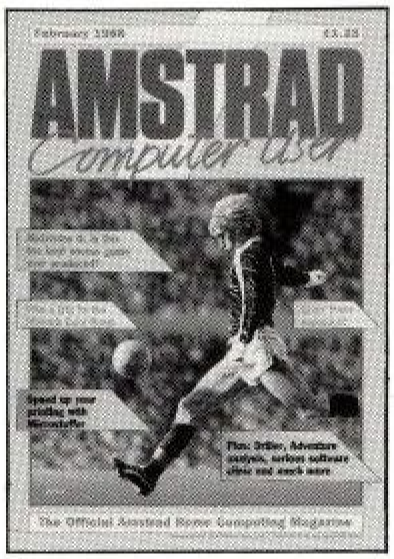
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# AMSTRAD Computer User

The official magazine for all users of Amstrad computers

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February 1988




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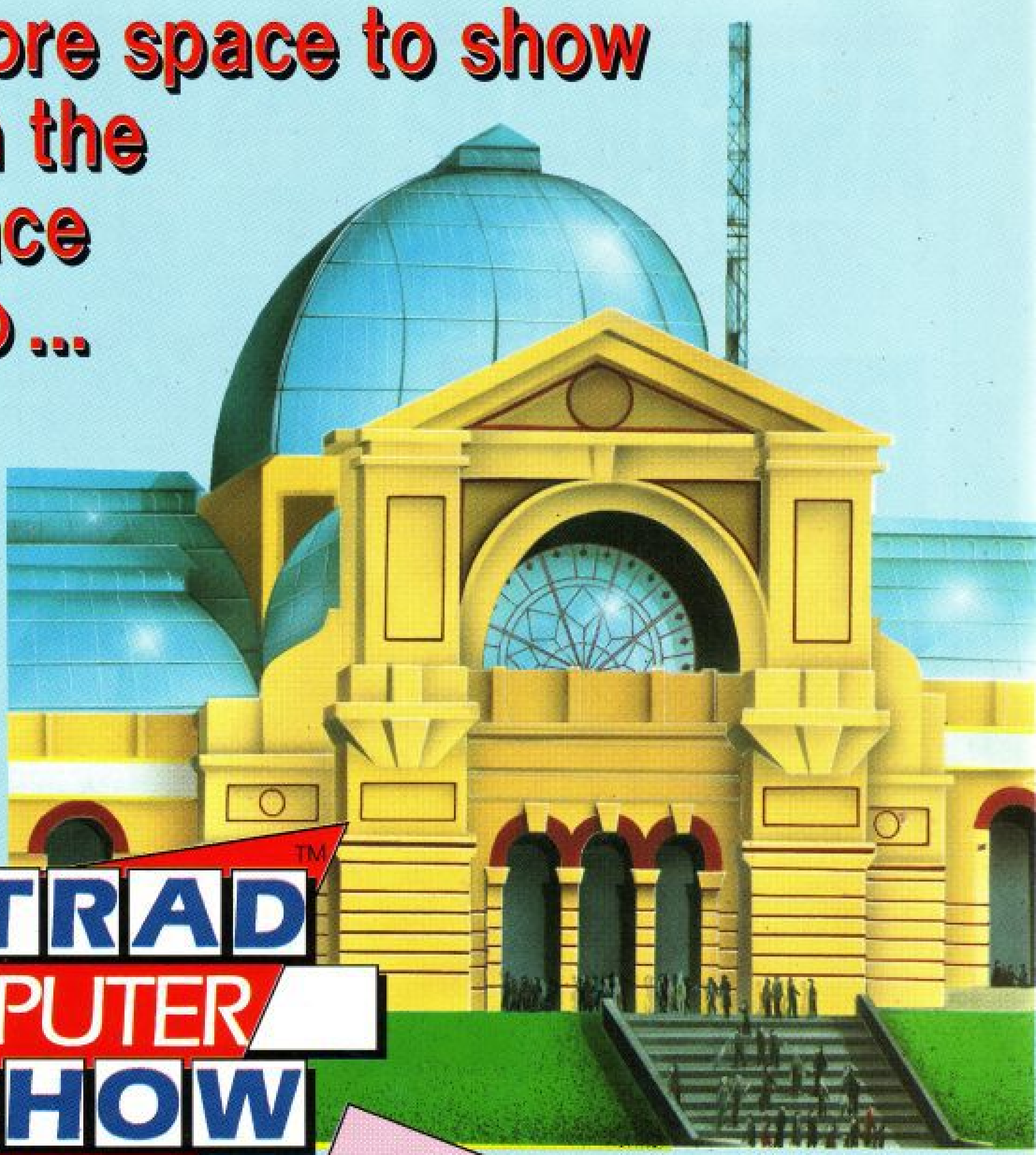






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**Assistant: Elaine Rawling**
**Advertisement Manager: Julian Harriott**
ABC 63,599 Jan-June 1987

# We needed even more space to show you all that's new in the Amstrad marketplace -so we've moved to ...



## The Great Hall
## Alexandra Palace
## Wood Green, London

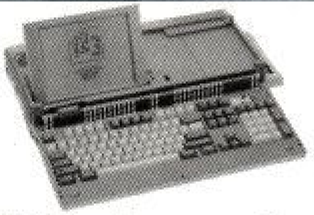
**AMSTRAD COMPUTER SHOW**™

Note new dates

| | |
|---|---|
| 10am – 6pm Thursday, | February 4 |
| 10am – 6pm Friday, | February 5 |
| 10am – 5pm Saturday, | February 6 |

Note new dates

## It's here!



**This is YOUR chance to try out for yourself the new Amstrad portable – the machine the press is raving about!**

## FREE presentations in the Amstrad Theatre

You can sit back in style and learn all about the latest releases for Amstrad computers – and get expert advice from some of the best brains in the industry. What's more, there's lots more seats than ever to meet the demand for this very popular attraction.

### How to get there

*It's so easy to get to the show – by car, rail, underground or bus. Alexandra Palace has its own British Rail station, whisking visitors to and from King's Cross in just nine minutes. And there's a free bus service shuttling between station and show every 10 minutes.*
*If you're travelling by road the show is only 15 minutes away from Junction 25 on the M25 – and all car parking is free.*

**Cut the queues and save £1 per head – with this advance ticket order form**

### Advance ticket order

*Please supply:*

☐ Adult tickets at £2 (save £1) ............ £ ..........

☐ Under-16s tickets at £1 (save £1) ........ £ ..........

Total £______

☐ Cheque enclosed made payable to Database Publications Ltd.

☐ Please debit my credit card account

☐ Access / Visa

_ _ _ _ | _ _ _ _ | _ _ _ _ | _ _ _ _

***Admission at door:*** *£3 (adults), £2 (under 16s)*

**Advance ticket orders must be received by Wednesday, January 27, 1988**

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**The Great Hall**
**Alexandra Palace, Alexandra Park**
**Wood Green, London N22**
**February 4-6**

**Post to:** ***Amstrad Show tickets, Europa House, Adlington Park, Adlington, Macclesfield SK10 5NP.***

Name ......................................................

Address ......................................................

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.......................... Signed ..........................

**PHONE ORDERS: Ring Show Hotline: 0625 879940**
**PRESTEL ORDERS: KEY *89, THEN 614568383**
**MICROLINK ORDERS: MAILBOX 72:MAG001**
*Please quote credit card number and full address* + A239

# NEWS — Computer User

## Say it with a Lithsp

HITHSOFT have produced their own version of Lisp, the lithst procethssing language to run under thC/PM. Ith's bathsed on Common Lithsp *(OK, enough of that - Ed)*, but "includes many extra functions from other flavours of the language.

It costs £49.95 and comes with a free copy of Tony Hasemer's Looking at Lisp. HiSoft is on (0525) 718181.

## Firebird launches Disco

NO, nothing to do with Firebird's ex-boss who is well known in the hottest night clubs. The boss, Paul Hibbard (pictured below), is an ouppie – that is an older yuppie. Firebird's new label is Disc only. Hence Disco, clever eh? No, we didn't think so either.



There are eight Amstrad discs, each with two games on them, priced at £6.99. Unfortunately, with the usual startling British Telecom Silver efficiency they have forgotten to tell us what the games are.



## Lineker takes to the air

BRITAIN's number 1 footballer, Gary Lineker, has always been light on his feet, but just recently he's been receiving a little mechanical assistance.

As our picture shows Gremlin Graphics hired a Bell Jet Ranger III helicopter to transfer him from London to Leicester to promote their game, Gary Lineker's Super Star Soccer.

## Computer delays computer show

A LAST minute delay to the renovation work at London's world famous Alexandra Palace has forced a date switch for the next Amstrad Computer Show.

The show – the eighth in the series – will now be held in Ally Pally's Great Hall from February 4 to 6 and not January 28 to 30 as previously announced.

Organisers Database Exhibitions, the computer show specialists, agreed to postpone the start of the three day event after learning that the problem lay in the installation of – a computer.

The machine in question has been designed to act as the nerve centre of the control room, monitoring all aspects of security, including fire safety, at Alexandra Palace.

"As the current renovation work followed a major fire back there in 1980, there was no way our show could go ahead until this final stage of the work had been completed", said Peter Brameld, the exhibition's marketing director.

The Great Hall – setting for the show – is the heart of Alexandra Palace. With almost 7,000 square metres of completely clear floor space it has natural diffused light from the single span translucent roof.

High technology, creative design and the most modern materials blend with traditional Victorian decor.

The splendid stained glass rose window, the renovated arches and the great Henry Willis organ, make it the focal point of the whole Palace.

"It will provide the perfect setting for what will be the grandest Amstrad Computer Show to date", said Derek Meakin, managing director of Database.



## Martech signs on the line

JOHN Forrest (left) of Electronic Arts (EA) has clinched a deal with David Martin of Martech which will be of great importance to our European readers.

Fron now on all Martech's games will be distributed to you through EA, unless you live in Spain or Britain. The first of these will be Nigel Mansell's Grand Prix, a game which deserves to do well even if the great man did miss out on the championship after his accident in practice before the Japanese Grand Prix.

## Oops

THE Gremlins struck the big screen program in the January issue. Here are the corrected lines.

1240 DATA F5,83,CD,95,83, 00,00,00,C5,1093 2430 DATA B8,D0,3A,C7,C7,A6,07,38,0C, 111E

# Johnny Dumfries

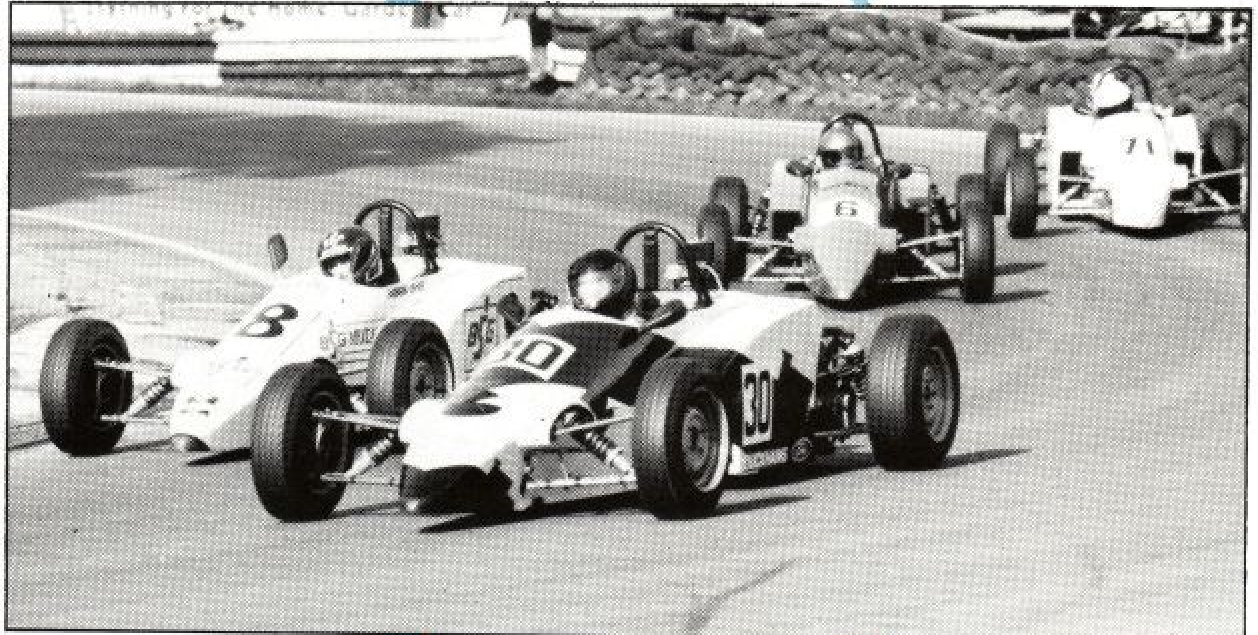



# endorses Code Masters

JOHN Colum Crichton – Stuart Earl of Dumfries – is more famous for being a very good racing driver than for being titled.

Johnny Dumfries, you'll remember, piloted the JPS Lotus in Formula 1 and is seen as one of Britain's rising stars.

Now he has taken the Code Masters shilling and will be endorsing the ever-green Grand Prix Simulator game.



# Active at Activision

AS we go into the New Year it's all go at the Activision camp.

A quick chat with marketing manager Amanda Barry revealed a long list of releases. Soon we should see Rampage, a game where you play a King Kong-like ape and have to smash down a city. Based on an arcade game, it's a bit like GO's Ramparts.

TV fans will have seen Knightmare, the ace adventure game on the box. Activision is planning to bring it to your screens.

Next up is Galactic Games. Designed by Chris Palmer it's an attempt to revive the theme started with Track and Field and now worn pretty thin. Events include worm racing and head throwing.

The big film licence is Predator, the movie starring Arnold Schwarzenegger (shown in a scene from the film below). No details on what it'll be like just yet.

Just to confuse you September is out this January. Based on the board game it is bound to be addictive. A new label for Activison is Abstract Concepts. Their first project is an adventure called Mindfighter.

A quick word with Archer Maclean, the programmer of International Karate Plus, explains why it is storming the C64 charts (other that the obvious reason that Commodore 64 owners are a bloodthirsty, violent bunch).

International Karate Plus (IK+ to those in the know) is said to be the most accurate karate game yet. It has 80 positions for each of the little men and a great pause mode.

Next month we'll have a look at Super Hang On, programmed by Chris Wood, author of Solomon's Key which will soon be out on Activison's Electric Dreams label.

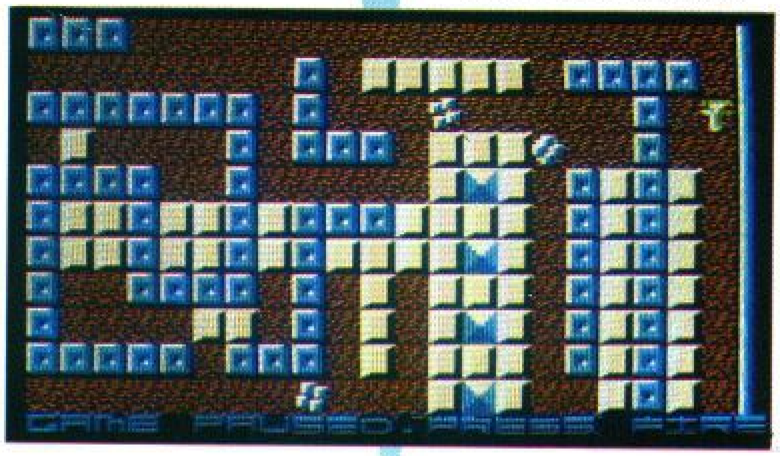


*Arnold Schwarzenegger's Predator is coming via Activision*

# Virgin in the fast lane

MIN Smith is the author of a number of interactive books, some of which have been turned into computer games. Now he's got aspirations to be the next Nelson Piquet.

Virgin Games are sponsoring him in the Formula First series, watch out for him on BBC2's Top Gear.




# Anarchy breaks out

NEW out on Hewson's Rack-It budget label is Anarchy, a tremendously addictive arcade game which combines reflexes with brainpower. It's refreshingly different and should find its way into your CPC soon.

Also out from Hewson is a compilation tape. This features Ranarama, Exolon, Zynaps and the previously unreleased Uridium plus.

Worth buying for any two of the four titles. You should look it up soon.

# Salamander coming

THE arcade hit Salamander from Konami is soon to hit the shelves. Delays in programming kept it from being exclusively covered in our pages this month.

Programmer Andrew Glaister said: "It's been really difficult. First we had some power cuts and then the Compaq 386 PC I was developing the game with died – the hard disc went down. Should soon be finished though".

*Amstrad Computer User* expects to have a review next month.

# ROMANTIC ROBOT *present*

# 1988 – THE YEAR OF THE ROBOT



***Q: WELL, I'VE HEARD OF THE YEARS OF THE CAT, PIG, AND EVEN DRAGON – BUT THE YEAR OF THE ROBOT?***

A: Absolutely! And ROMANTIC ROBOT wish to make 1988 a truly memorable year (if not us, who will?). To kick off with, there is an INTRODUCTORY OFFER OF **£29.88** ON RODOS, plus a truly unique 1988 NEW YEAR MAIL ORDER PRICE OF MULTIFACE TWO – **£39.88!**

***Q: I LOVE SALES. BUT WHAT'S SO LIKEABLE ABOUT* RODOS *and* MULTIFACE?**

A: RODOS is too powerful and complex to be summed up here – please send a SAE for full info. MULTIFACE is (simply) a MUST for ANY CPC owner: it can copy and change programs as you wish.



***Q: OH, DO I NEED TO DO ANY PROGRAMMING TO MAKE BACK-UPS?***

A: NO! – NOT with the MULTIFACE TWO – it is in fact the ONLY product on the market which works FULLY AUTOMATICALLY. You LOAD any program as usual, RUN it for as long as you like and when you wish to make a copy you just press the MULTIFACE's red button and follow the menu and on-screen instructions.

***Q: HOW DOES IT WORK THEN? IS IT EASY? USER-FRIENDLY? ERROR-TRAPPED? IDIOT PROOF? GUARANTEED?***

A: YES! It works a treat and it could not be easier. The menu gives four basic options – to **SAVE** a program, to **RETURN** to continue it, to **JUMP** (say to your own routines – invaluable for hackers) and **TOOL** to access the MULTI-TOOLKIT set of built-in utilities. For example pressing **S** to **SAVE** will first allow you to **NAME** the back-up and then let you save a **PROGRAM** or just a **SCREEN** to **TAPE** or **DISK**. Before the saving itself, MULTIFACE compresses the program so that it takes the least amount of space on tape/disk and will re-load as quickly as possible. Once a program is saved, you can **RETURN** or **JUMP**, use the **TOOLKIT** to change it, **SAVE** it again, etc.

***Q: DON'T YOU CORRUPT THE SCREEN WITH YOUR MENU, INSTRUCTIONS, PULL DOWN WINDOWS, ETC.?***

A: NO. MULTIFACE TWO has its own memory (8K ROM & 8K RAM) and a lot more hardware – thus when it finishes its job or when you re-load your back-ups, everything is **FULLY** and **AUTOMATICALLY** restored: screen modes, colours, windows, etc. This is essential and NO OTHER DEVICE CAN DO IT!

***Q: OK, SO MULTIFACE CAN COPY FROM* TAPE TO DISC, *BUT CAN IT DO* TAPE TO TAPE *OR* DISC TO DISC *OR* DISC TO TAPE?**

A: Of course it can. MULTIFACE saves either to tape or disc and it saves whatever happens to be in the computer at that time – no matter how you loaded it in.

***Q: SO FAR SO GOOD. BUT CAN'T I DO ALL THIS WITHOUT THE MULTIFACE?***

A: ABSOLUTELY NOT! First, you need a hardware device, a "magic box", to be able to stop and copy programs AT ANY STAGE – be it upon loading, half-way through the game, etc. Tape/disc copiers can only try to copy programs BEFORE they load: if there are unorthodox loaders, speedlocks, protections against copying, etc., you'll end up with a problem – but not with a back-up. Also, with MULTIFACE you can poke infinite lives, ammunition, etc. – and then SAVE.

***Q: MULTIFACE IS NOT THE ONLY 'MAGIC BOX' ON THE MARKET – WHY SHOULD I BUY IT MORE THAN ANYTHING ELSE?***

A: There are four devices on the market. Action Reply by Datel Electronics, Disc Wizard by Evesham Micros, Mirage Imager and MULTIFACE TWO. Each manufacturer would naturally argue his product is the best buy – fortunately (for you and us), MICRONET recently compared all four units and MULTIFACE TWO came out the best in literally all respects: the most successful one – 100%!, the ONLY AUTOMATIC ONE, the FASTEST ONE both in LOADING *AND* SAVING time, the one taking the LEAST ROOM when saving – and you still get a couple of EXTRAS: a RESET button and an extensive and unique MULTI-TOOLKIT.

***Q: MULTIFACE IS IT! THE RIGHT THING IN THE RIGHT TIME! IF ONLY IT PAID FOR ITSELF...***

A: But it does! By the time you buy 8 programs on tape instead of disc, you will have saved £40 – the cost of the MULTIFACE. The money you save on further programs is all yours .... **MULTIFACE ✦ worth every penny, saves you pounds!**

## Romantic RObot Disc Operating System

Just one ROM will turn your CPC into a professional set-up: With RODOS you can attach additional disc drives – 40/80 track, single/double sided and store more than 800k per disc.

**RODOS** NEW

But RODOS is in fact much more than a fast and perfect DOS. RODOS also gives you RANDOM ACCESS, PRINTER BUFFER, full ROM manager, SILICON DISC, altogether 54 new bar commands, enormous power – all this and much more for £29.88 only!

## multiface two

**NEW YEAR MAIL ORDER SALE PRICE £ 39·88**

**RODOS**

**INTRODUCTORY OFFER-ON ROM £ 29·88**

The special price of £39.88 applies strictly to mail orders received with the coupon below before the 29th February 1988.

Tape-to-disk at the touch of a button. Ridiculous, you may say, but it works every time. *Multiface* can stop any program in its tracks and save the program from memory to either tape or disk. It's completely fool-proof. Similar products have had problems with screen size, colour and even sound; *Multiface* can handle all these without a second thought.

That alone would have satisfied many people, but Romantic Robot has gone one step further, incorporating a memory editor. No program is safe with this: everything is out in the open, including the Z80 registers, CRTC data and any part of memory.

Don't be fooled into thinking this will result in mass piracy, however. The *Multiface* unit itself must be plugged into your Amstrad to allow reloading of a program it saved.

*Multiface II* must be the cleverest hardware device at present – a necessity for disk owners who thought they were stuck with loading from tape every time.

AMSTRAD ACTION JANUARY 1987

# THE YEAR OF THE ROBOT · BE PART OF IT

I order MULTIFACE 2 (£39.88)☐/ RODOS (£29.88)☐ plus p&p UK £1, Europe £2, Overseas £3

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# Lance "Letters" Davis sorts your missives – and answers the need for a long-term competition

## Bugs, bugs, bugs

HI, two li'l-'ol thangs here. One of which is the answer to a query and the other a complaint (I usually keep my complaints to myself, but I'm feeling generous today).

The query was from Decanniere Klass, in the November issue who asked about an apparent bug in Basic. The answer is that the line containing else is never acted on because ELSE is expecting the result of a condition to be TRUE (–1) or FALSE (0).

As there is no condition, the answer will always be TRUE and so the ELSE will not branch. Try the program without line 60 and you will see that the result is the same as with the else inserted.

As to the complaint. I have noticed over the last few years that, particularly in assembler listings, there are often sections where the cut and paste facility has gone haywire. Breakout is a typical case in point, as is the WIMP listing in the November issue.

My Maxam assembler does not like duplicated labels using the EQU directive, and there are quite a few bits like this in the listings. In the Wimp listing there are a large number of unnecessary calls to invert bar.

Finally, I would like to congratulate you on the new look. It's quite effective and looks more relaxed than the old one. Any chance of some articles on SOUND programming from either M/C or Basic?

**Mike Lyons, Herts**

***LD:*** *You were one of many who pointed out the error of Mr Klass's ways. Yes, we have had some trouble with program listings, but having learnt the (syntax) error of our ways we will try to explain to the typesetting machine that it should not do things twice – however much it likes Z80 code.*

*Thanks for the sound suggestion, I'll bring it up at the next editorial meeting. We'll all forget about it and then the editor will mention sound articles and claim it was all his idea.*

*Actually I've a sneaking suspicion that there is a sound article being worked on right now.*

## Pinta power

I HAVE some small tips for the M.A.D. game "Milk Race" (which I incidentally managed to complete).

1) On hills going down keep in gear 12.
2) On hills going up change from gears 6-7 depending on the ratio of the hill.
3) On straight surfaces change between gears 10-12.
4) You cannot collect milk while moving up and down so therefore whenever you pass a milk bottle STAY STILL!
5) Try not to keep in groups of cyclists. You could




get squashed by them on hills.
6) Try to keep in the middle of the road so that you are ready for passing milk bottles on BOTH sides of the road.
7) If you get tense and nervous on the last few laps, then relax and shake your hands in between laps.

**Andrew S. Maclellan, Tyne and Wear**

***LD:*** *Thanks for that. I'm sending you Konami's Jackal, Firebird's Realm and Ultimate's Alien 8 (on the Ricochet budget label), as a reward.*

## Southern comfort

LAST year I received the Graphic Adventure Creator as a Christmas present. It turned out to be quite good, but was very limited in some areas, like the parser, the graphics and the fact that the finished game could only be one 43k file.

I found I could only do what the author expected an adventure to be. Recently, though, I bought an unknown program called the Genesis Adventure Creator. It was half the price of GAC, could have up to 250 picture/sound blocks, up to 20 graphics text/windows, split screens and heaps of other options that could never be done with GAC.

Anyway, the reason I'm writing this is because I want to know why everyone raves on and on about GAC. Okay, so its instruction manual is far better than Genesis's, and GAC is easier to learn, but after a while I could write really professional programs with Genesis. Finally, look at the standard of most GAC games, such as (Necris Dome and Imagination).

Junk!

PS – Has the Hairy Hacker ever published a poke for Trailblazer (disc)?

PSS – I own a CPC 6128, with a 5.25in second drive, AMX MOUSE, blah, blah, brag, brag.

PSSS – And no, I'm not the brother of the person who wrote Genesis!

PSSSS – What have you got against Australians with 5.25in drives?

**Chris Woodworth, Queensland, Australia.**

***LD:*** *We only saw a very early Genesis which was to be marketed by CRL, and that was pretty buggy. I can't find a Trailblazer poke, but then some mornings I have trouble finding the bathroom.*

*If you think I'm going to send goodies all the way to Australia you've got another think coming. I didn't think it was very likely that your brother lived in Devon, which is where Camel Micros (0392 211892), the producers of Genesis, come from.*

*I've nothing against Australians. Why, some of my best friends have heard of Australia. But 5.25in drives are for specialist users only. I'd rather use 3in discs any day.*

## Moving up

I'VE read in two magazines now that if I remove the rom marked 40009 from my CPC 464 and replace it with a rom 40025, then buy the DKT 64k ram I would have a CPC6128. I already have a DDI1 disc drive and DMP 2000 printer.

Would this mean that I would have CP/M Plus or still have and be able to use CP/M 2.2? I'm using Amsword to write this letter. Will I still be able to use it or will I have to upgrade to Tasword 6128?

If I did upgrade to Tasword 6128 would this now perform exactly as it would on the CPC 6128?

Would all the games and utility programs that I've typed in out of magazines still work?

If this transformation takes place would I need to buy a CPC 6128 manual for all the new instructions and different codes, etc?

**C.H.Spragg, Sale, Cheshire.**

***LD:*** *OK, You can buy CP/M+ from CPC in Preston. It costs £13.94 including VAT, P & P. They are the same people who supply the rom. You can concontact them on 0772 555034.*

*Your Amsword will work just as well as it ever did, but you may want to upgrade to get the extra*

▶

*Send your letters to:*
Lance Davis
Letters Editor
Amstrad Computer User
169 Kings Road, Brentwood
Essex CM14 4EF

SIREN SOFTWARE

## Print Master

**This superb program must be the most useful printer utility to date**

Will allow you to print Tas-Word/Protext files in a variety of fonts/sizes.

Comes complete with 20 varied fonts.

Font designer allows you to create your own fonts or alter existing ones.

Semi proportional spacing is available.

Will add NLQ to most printers.

3 types of screen dump including a 16 shade mode 0 dump.

Very easy to use, full instructions and demos included.

No printer should be without it.

**On disc ONLY £14.99**

CPC 464/664/6128

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**This program really is the ultimate in disc utilities. Just look at these features:**

Disc copier will backup 99.9% of all Amstrad discs.

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Will also transfer files from tape to disc and disc to tape.

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Search disc/file for a given string. Dump screen onto a printer.

Built in calculator for hex to decimal conversions etc.

Full graphically displayed explorer.

Exceptionally easy to use. Uses pull down windows a nd menus etc.

Many other unique features

**Available now on disc at £14.99**

CPC 464/664/6128

Masterdisc/Oddjob owners, we will put Discology on the B side of your disc for only **£9.99**

## Discovery Plus

Probably the best selling tape to disc transfer program for your Amstrad. This highly successful and easy to use utility will transfer the majority of Amstrad software from tape to disc. Will transfer 100's of programs. Discovery Plus consists of 5 programs that will transfer headerless, hyperloaders and even many speed-locked programs from ta pe to disc.

*"Discovery Plus must be the most advanced and probably most efficient tape to disc transfer utility to date" – Amstrad Action 12/86.*

**Available now on disc at only £14.99**

CPC 464/664/6128

## Eprom Programmer

**Program your own eproms with our easy to use unit.**

This purpose built unit comes complete with separate power supply and is cased to match your CPC. Software on disc (can be put onto rom) will allow you to copy roms, edit roms, and program them with full verification.

Will even allow basic programs to be run from rom.

A through connector and zif socket make this device easy to operate.

Will program 8K and 16K roms.

12V and 21V programming voltage switchable.

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VISA

*features of Tasword 6128. Only a very few programs written for the 464 do not work on the 6128, and will not work on an upgraded 464. The most notable of these is Manic Miner.*

*Yes you will need a new manual – try CPC for one. DK'Tronics' products are now sold by Ram Electronics. You can contact them on 0252 850085.*

## Software starvation

DOWN in Australia the CPC suffers greatly under the antics of our so-called superiors. Our local shop has the latest in C64 games at great prices, but our Amstrad dealer sells the latest in Amsoft games. DULL (and at huge prices ).

Even in the major cities I've had trouble locating Amstrad games, and quite often the prices are ridiculous.

Still Australia isn't that bad. I've two good games, Gauntlet and Druid, which I got for Christmas 1986.

My few Amstrad friends have similar problems. Looking at your magazines, I can see how lucky UK owners are. I mean with games so readily available, you must live in paradise.

I hope you will print this letter so you UK CPC owners know life in Australia isn't simple.

**Senad Brkich,**
**Port Hedland W.A.**
**6721 Australia.**

## United stand

I'M writing to complain about the fact that you cannot buy Amstrad computers and monitors separately. I have a CPC664 and I would like to upgrade it to a CPC6128.

There are a few things that I don't like about the CPC664 like the keyboard. Why doesn't the CPC664 have a keyboard like the CPC464 or 6128? I know a friend who has a CPC464 and the keyboard is much easier to type on.

Also I was disgusted at the fact that the majority vote in the survey was for less games reviews.

**Nick Peecock,**
**Ipswich**

***LD:*** *It has long been a complaint that you can't buy monitors, but when you sell your 664 the person who buys it from you is going to need a monitor to go with it. There is no point in keeping the 664 if you are getting a 6128.*

*I disagree about the quality of the 664 keyboard. I think it is the best Amstrad keyboard made, easily as good as that on the PC 1640, and much better than the one on the 8256 or 464.*

*The whole point of a survey is to find out what the majority want. Did you vote?*

## Future tense?

IS it true what I have been reading in *ACU* that Amstrad intends to stop manufacturing the CPC and concentrate on selling tbe Spectrum?

You cannot do this to us CPC owners. The CPCs have been on the market for much too little time for being taken off it.

And that idea about the Spectrum replacing the CPC! To be straight out, the Spectrum is terrible. In comparison with the Arnold it falls to pieces.

In games, business or whatever it's no good. I know this because I have owned one. The CPC is in my opinion a very good, useful computer and I can't understand why Amstrad should stop producing it. I have a 6128.

**Johannes Hjaltason**
**200 Iceland.**

***LD:*** *No and yes. No, Amstrad does not intend to stop manufacturing the CPC, well not as far as I know. But the company is for some strange and misguided reason spending a heck of a lot of money on the Spectrum. Still Alan Sugar is the one with the Rolls Royce, and I'm the one with the Toyota, so perhaps it's a case of where there's muck there's brass.*

## Impromptu Compu

I LIVE in Australia (The land down under) and I would like to tell you that I am outraged by your competitions.

A boy walks into his local newspaper shop and buys the latest *Amstrad Computer User*. He thinks that this is great and goes home. When he is sitting down reading the magazine he finds that there is a competition that he can do to win a prize – but it had to be in three weeks ago.

So I, on the behalf of all my fellow CPC 464 owners and also many other Amstrad owners, think that you should try to rectify this.

Maybe you could have the occasional international competition, due in on a date say two months after publication.

**Jonathan.A.Clark**
**Padbury 6025, Perth**
**Western Australia.**

***LD:*** *OK, I've said before that the best way to get ACU early is to emigrate. Come and live in London and you will get the magazine within a week of its being printed. Subscribers usually do better.*

*But for those of you with roots outside Europe here is a quicky competition. Who was the female star of Mad Max III? All the usual competition rules apply. The prize will be the very latest CPC program to arrive after the closing date of... wait for it... July 1st. The prize will be sent air mail, so you will have it before your friends even know about its existence.*

## Surviving an attack

I THOUGHT I would strike while the iron is hot and make a complaint about the December issue of *Amstrad Computer User*. The review on Survivor was absolutely diabolical.

First off you put "Author: Ocean" when it is U S Gold. Then Liz really took a big attack on Ocean. This will give them a bad name.

Do you really think Ocean can make a game like this? Only U S GOLD can. So would you please put this right and make an apology to Ocean as they are the best company.

My computer is an Amstrad 6128. I have no complaints about your magazine – it's great. Please bring back the old kind of cover.

**Simon Davis,**
**Wales,Sheffield.**

***LD:*** *Yup, Liz is a very naughty girl. She has been suitably punished – made to play Amsoft games for a whole 20 minutes and threatened with having to tell Bruce Everiss what she really thought of Pro Ski Simulator. Sorry Ocean.*

## Insider coding

I WAS wondering where you could get a load of computer games which are stored on a microchip, so all I have to do is to type (H)Games and a list of games will be displayed on the screen.



Then I enter what game I want to play.

There is something else I would like to know as Will, my brother, is always playing on my computer. Is there a microchip that when you switch on the Amstrad CPC464 the computer displays (H)PASSWORD so when you type your password the computer rests automatically, so you can do what you want to do? Then it will stop my brother from playing on my computer.

If you had lots of games on one microchip it would be better than a cartridge. With a cartridge you would be sliding it in and out every time you want to play on it and soon the chipboard slot on the computer would be worn down, and then you have to buy a new one. That costs money.

**Gary Bowen,**
**Windlesham, Surrey.**

*LD: All the (H) commands use a sideways rom. Roms are very expensive – something like Trantor would cost over £50 if it was sold on a chip instead of a tape. You are limited to the number of games you can hold in sideways rom – usually 16 programs at a time.*

*Yes, it would be nice, but discs are a much better bet and not so much slower. You could write your own [BAR] password command, but I don't know of any which are commercially available.*

## In Ter Face

I AM a CPC 6128 owner and I have recently joined the official Amstrad Users Club. I was going to ask them this question, but I thought that you might provide me with a better answer.

I am going to buy a DK'tronics speech synthesiser for my 6128 soon. Is there any special Basic command word for making speech so that I can design my own speech program?

If I had about five small battery-powered motors, like the ones you find in toys, how could I rig them up to my 6128 so that if I press and hold down a certain key , motor 1 will start and if I release that key, motor 1 will stop and the same with the other motors?

How could I connect a thermostat and a light sensor to my 6128 so that my computer can monitor the temperature and also monitor the amount of light in the room? Would I use a light dependant resistor for a light sensor?

**Nicholas Irving**
**Headley, Hampshire.**

*LD: The speech synthesiser comes with full instructions which explain how to write your own speech prog. For details of interfacing contact Commotion on 01-804 1378.*

## Deutsch discs

I AM writing to correct you of your rather rash statement in the November issue concerning Mr. Barry Goodsell's enquiry about hard discs for the CPC series of computers.

There is a German firm by the name Vortex which marketed a 20Mb disc system for the CPCs in July 1986. The hard disc can be used as four drives.

If anyone requires further information they should contact: Vortex-Versand, FALTERSTRASSE, 7101 FLEIN. WEST GERMANY.

The actual designation is either WD – 1000 or WD - 2000 for 10Mb or 20Mb respectively. It may also be a good idea to state which computer you use as there is also a version for the Joyce.

**J.W. Imrie**
**5 Regiment R.A. Workshop**
**BFPO 20**

*LD: There were some problems with Vortex over copyright of the DDI-1 software which precluded them from selling their kit in the UK, but thanks for the info.*

## Paint tapes

I OWN a CPC 464 and I am very interested in art. I was shocked to hear that Art Studio by Rainbird was only on disc. I use a program at school called Paint Spa on the Research Machines, so please tell me of a few programs available (that are not too expensive).

**Simon Williams**
**Hedensford, Staffs.**

*LD: Look at Melbourne Draw from Melbourne House or the ever-popular Screen Designer from Amsoft. Both are available on tape and should be available in your local software shop.*

## Wogan upstaged

DID you see him? On the box, BBC 1, Wednesday night, 7:15? No. Well I'm talking about "our" Alan Sugar on Wogan. Didn't he do well? "One of the most successful men in the city", said Wogie sitting on his Beeb prop chair.

I think AMS stole the show. You're famous, Ali baby. Please send me your signature (only joking). But it was good, wasn't it?

Did I hear him say that Ali had launched a new portable computer? What is it called? How much is it ? Tell me more.

Oh by the way I am writing to you on a Brother HR-1 printer on my dad's computer (snobby Apricot, double drive).Is there any way I can link the printer up to my old Arnold?

The printer is a daisywheel and it has a serial port at the back. Could you help? And what software could I use for printing on the printer?

Anyway give my regards to Alan Sugar and tell him that I liked his suit.

**Scott McDonagh**
**Burnbank,Hamilton.**

*LD: If you knew how much Armani suits cost then you'd think that Alan Sugar's togs were very poor vfm.*

*You can link your CPC to a serial printer with the Amstrad Serial interface. This will need some special software and costs a whopping £60 which explains how Alan Sugar can afford £500 suits (whoops worra giveaway).*

## Prime numbers

IN the last issue of *ACU* Mr.W Elliot of Lancaster, showed us a program that gave the prime numbers up to 100. The program had two weaknesses:

- It could only handle numbers up to 100.
- The program was very slow.

I typed in a program that runs for as long as you want it to. It gives the numbers up to 100 in 5.06 secs, whereas Mr.Elliot's program needed 22.86. I am not good at maths, and I am sure somebody has a better program to send to *ACU*. Please do !

Here is what I came up with:

```
10 n% = 2
20 FOR i% = 2 TO n% - 1
30 IF n% MOD i% = 0 THEN i% = i% + 1 :GO
TO 20
40 NEXT : PRINT n% : i% + 1 : GO TO 20
```

**P Nojd**
**S-171 52 Solna**
**SWEDEN**

## Female action

AS a female micro user I would like to enter the debate concerning the apparent lack of interest from my half of the population in micros and micro magazines.

Whenever my two daughters and I decide to treat ourselves to a game we are dismayed by the preponderance of male-orientated discs.

Perhaps we are unusual, but we have no interest in zap-zap or even pow-pow. War games do not thrill us, nor does World Cup football. We enjoy adventure games, but half-dressed maidens don't turn us on and we have been reduced to playing Think! or Trivial Pursuit which, good though they are, are beginning to pall.

There must be some female programmers out there who could devise games that have more significance for us.

For example , an adventure based on avoiding macho drunks during a night on the town, how many screaming babies could we feed at once, a nightmare adventure at the supermarket, and so on.

Seriously, it's not the machinery which turns us off, it's the software.

On the subject of software, can anyone suggest a cheap word processing program to replace my existing one and still be able to transfer my files?

I received a free Microword pack, running under CP/M, when I bought my micro, and have written a good half of my degree dissertation on it.

I now realise that it is not comprehensive enough for my needs, and would like to replace it without having to rewrite it. Any suggestions?

I have a problem with my printer. When I bought it from a nationwide discount store I was assured that the Amstrad DMP 3000 was ideal for my needs.

Taken by the lure of a free lead in the pack, I bought it and then discovered that, of course, it was a PC lead. Much hassle later I got the right lead, but the user instructions are also for a PC.

I am convinced that there is no CPC manual for the DMP 3000. I can use its most basic functions and that's all.

Is there anything I can do about this, or am I condemned to using £170 worth of equipment at a level well below its capabilities?

**Sue Thomas,**
**West Bridgford, Nottingham.**

***LD:*** *There are games which will serve your minority interest, but not surprisingly it is a minority of games. You may represent 50 per cent of the population, but only a tiny fraction of computer users are female.*

*Of course that isn't right, but software houses are in the business of making money – not promoting women's software. Have a look at Plundered Hearts. It's a spoof Mills & Boon adventure from Infocom (01-431 1101).*

*I'm pleased you like Think! it's one of the most underrated games ever.*

*If Microword won't do what you want then I doubt that any cheap word processor will. Write to David Foster at the Applications Advice column outlining what you want from a word processor. I suspect he will recommend Protext.*

*Try CPC for a DMP 2000 manual, most of the things in there should work on a DMP 3000.*

## Add-on advice

I AM interested in buying a 5.25in disc drive for my 6128. After reading November's Cage Page, it seems that such drives are available from £99.

Please could you enlighten me on the meaning of a Shugart interface and where I might obtain such a drive (would any Beeb drive be OK?). Does anybody make a cheap eprom programmer for the 6128?

**Gavin Candland**
**Bush Hill Park, Enfield.**

***LD:*** *If you don't understand things like Shugart busses then you are better off sticking to a 3in drive. As a second disc drive a 5.25in is quite simple, but the software support isn't and the capacity no better. Siren Software (061-228 1831) has a CPC-dedicated eprom blower for £50.*

## Praise for DER

WITH reference to the letter by S Houlding, *ACU* November. My wife kindly bought me a CPC 6128 without screen but with modulator.

I reasoned that the signal on conversion to a linear one for the TV aerial socket was degraded. Before I did anything else I changed the portable TV for one with RGB input (rental from DER), but was still dissatisfied.

I now wanted a connection lead from computer to the RGB socket. I had zero help from Amstrad or Fergusons, (the TV manufacturers) on how to make up a connection lead.

Not expecting much I telephoned DER in Slough, I could only manage to speak to the young lady dealing with telephone calls, but she said leave it with her.

Within 30 minutes she phoned back to say that they would make up a lead and send it to me. I received the lead three days later by post!

I now use the modulator only as a power supply and have direct connection from computer to the RGB input. Needless to say I am very happy.

**P.S. Maxim,**
**High Wycombe, Bucks.**

## Super service

MAY I praise the total excellence of Rombo Productions, producers of the UIDI Digitiser for the Amstrad.

On returning the guarantee registration with a question about after-sales service and enquiring about the availability of a phone-in Help line I was grateful to receive a reply in the affirmative.

I had cause to use this Help line a few weeks later and received excellent help with my problems. I made the phone call at 8 o'clock in the evening.

Thank you Marcus and staff at Rombo.

**G.A. Britton,**
**Bracondale School, Norwich.**

## Batman II

I WANT to know if there is a Batman II out or coming out please. And is there going to be a second Paperboy? I liked Batman a lot. It was good, exciting and a little bit hard. And Paperboy I think is brilliant. I haven't got it on my computer, but I've played the coin machine.

**Michael Kiely**
**London SE17 2LR.**

***LD:*** *Look at this month's article on Match Day II. You'll see that Jon Ritman wrote Head Over Heels as a follow up to Batman, and it is brilliant. There is no coin-operated Paperboy II. Even so I doubt that Elite will follow its Bomb Jack II success by releasing a Paperboy II.*

## Epson agitation

There were gross inaccuracies in your November 1987 issue article entitled Out of the dumps concerning Amstrad's LQ3500.

First, the Epson LQ range of printers is not, quote: "the old Epson range". Epson has had an LQ range for four years and at present there are three Epson LQ models – LQ800, LQ1000 and LQ2500.

Already announced are two replacement



models – LQ850 and LQ1050 – and an upgrade – LQ2500+. Further, an Epson LQ at the low end of the range – LQ500 – has been announced as being available from January 1988.

Secondly, you refer to Epson stopping production of the LQ1500 some 18 months ago. While this may be correct – the context in which you use the statement infers that Epson have stopped all LQ production, which we patently have not, and that the LQ1500 was the only LQ printer available from Epson, which it obviously is not.

Taken in conjunction with your "old range" comment above, this "stopped making them" statement is grossly misleading.

Thirdly, you wrongly state that the wide carriage version of the Amstrad printer is the LQ500. It is in fact the LQ5000 (Mr.Sugar's own words). This error is particularly reprimandable since, as stated above, Epson have already declared our intention to bring out an LQ500 in January 1988.

Considering these potentially damaging inaccuracies, we feel it fair that we ask you, in the next issue of the magazine, to give over a section of your editorial space to informing your readers of the correct facts.

We accept that while such editorial may not be equal in size to the original piece, you will consider a reasonably prominent position for the corrections.

Finally, you should be aware that, on the above date, legal proceedings were started against Amstrad to prevent them using the designation LQ in combination with a number for their printers.

**Tony Westray**
**Public Relations Manager.**
**Epson (UK) Ltd.**

***LD:** We've printed this letter in full in the interests of fairness, but I think you'll agree the only real mistake you've highlighted is the nomenclature of the DMP 5000. Since we received your letter Amstrad and Epson have reached agreement on use of the designation LQ.*

## Prime numbers II

THE October issue has a program for picking prime numbers. I have a short answer which works at a reasonable speed (my opinion).

You can also choose the area to pick within, modify line 10:

```
10 FOR T = 1 TO 100
20 P = SQR (T)
30 FOR N = 2 TO P
40 IF T/N = INT (T/N) THEN 70
50 NEXT N
60 PRINT T
70 NEXT T
```

I have had my CPC 464 since November, 1985. The only thing I can complain about is the manual which is translated into Norwegian. You sure don't learn much from it. Bad translation and little or no explanation to what is going on in the examples. Here they have a lot to learn from others.

## Pen friend

Could you please print the following: CPC 464 owner hopes to find a pen friend who will try and help myself learn about my computer and use it to its utmost ability.

If I see this advertised in some way I shall be totally stuck for words to say to you how thankful I am. As I am in a special hospital and there is not a lot I can do about getting information from the outside world to do with computers.

For your reference, I have got the CPC 464 + CTM 644 Monitor and the DMP 2000 Printer. I do also have a Teletext Adapter for my computer, and it keeps me in touch with the outside world. And only some weeks ago my DDI-1 came so I am now learning very much more about my system.

**Mr S.J.Hollis,**
**Lawrence Ward,**
**c/o Park Lane Hospital,**
**Maghull,**
**Liverpool L31 1HW**

## Mistake take II

ON page 44 of the December, 1987, issue of *Amstrad Computer User:*

1) Lines 115 + 120 appear twice. Which is the correct pair?

2) An error message tells me: "Data line 595 is wrong" What is the correct version?

**P.C.Jowsey**
**Aberdeenshire AB3 7RN.**

***LD:** The second pair, line 595 should read:*

```
595 DATA B3,DD,77,00,C9,5F,AF,D5,04B3
```

Sorry 'bout that.

## Hmmm!

I'VE been hoping that someone will write to ask you the questions that have foxed me since buying my machine last Christmas, but it seems that I need to seek inspiration directly from the horse's mouth.

I recently bought Rainbird's Advanced Music System for my eight-year-old son who is interested in music and plays the piano. I wanted to buy a keyboard to make it easier for him to use AMS.

Boots sell one for the Commodore and persuaded me to buy the Cheetah model. Unfortunately, the Cheetah keyboard utilises its own software and requires the use of a tape recorder, which I do not possess.

I took the keyboard back and Boots kindly refunded the money. Is there a way I can use the keyboard at a reasonable price with the 6128 and also use the AMS?

I am particularly anxious to obtain a low cost statistics package for my machine, preferably something that will carry out non-parametric statistics as well as parametric. Can anyone help?

I also wish to obtain a genealogical database for the 6128 that is compatible with the system generated by the Church of Jesus Christ of Latter Day Saints but with functions using larger discs. I do not have a second disc drive as yet.

Finally, I was disappointed to note that 95 per cent of your readership are male. However, may I point out that many mothers of your young men could quite easily be converted to the idea of the benefits of computerisation, if they had even the slightest smattering of typing skill and your editors took account of the value of this machine to such strange creatures as females and endeavoured to sell the ideas in an appealing manner.

I do not think a great deal of *ACU* and will not be renewing my membership because you do not acknowledge the value of the CPC, particularly the 6128, to a female audience and you write articles that are highly technical and, quite frankly, difficult to understand for the novice.

I'm sure you are all feeling quite pleased with yourselves for being the "best selling Amstrad magazine in the country".

When most of the others cater for kids playing games or PC users, it must be great to be the best at being jack of all trades, master of none.

With hope for a better future!

**Karen E.Burton (female!)**
**Sowerby Bridge, West Yorkshire.**

***LD:** Unfortunately there is no simple way to connect a piano keyboard to TAMS. They did plan a Midi module but this would have been pretty expensive.*

*You won't be able to use TAMS, but there are a few Midi modules around, the best value for money being the one from Ram electronics. This will need a Midi keyboard so you are looking at around £200 for a reasonable system.*

*Better news on the statistics side: S. C Coleman sell Amstat. You can call them on 0530 415919.*

*We have an article on genealogy coming up in the next couple of months. I don't know if it is file-compatible with the Mormon database, but it is pretty comprehensive.*

*In a way it is good to receive the odd hostile letter, so much better than another "I think your mag is fab terrif, brill can I have some free software?"*

*The appeal of ACU is that it covers such a wide range. You may want more less techie articles, others want more games. That is why we ran a survey.*

*Ideally you should grow with the magazine. As you learn more about your computer from the simple articles you will progress to understand more of the complicated ones.*

*We can only hope to please as many people as possible, and if female readers want more say they should push for it by writing more articles.*

MicroLink
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TELECOM GOLD
NEWSLETTER

# NOW FT BUSINESS REPORTS GO ON LINE

THE Financial Times Business Reports database is now part of Profile Information – the online service formerly known as Datasolve International – which is obtainable through MicroLink. It is the first venture between Profile and its new owner, The Financial Times, which recently acquired the company from Datasolve for £10 million.

Based on the highly-regarded FT newsletter service, the new database provides the full text of 22 regular newsletters covering technology, business, finance, media and energy.

Profile is best known to MicroLink subscribers for its World Reporter database containing the complete text of more than 25 worldwide newspapers, periodicals and news services.

As well as the world's leading business newspapers – the Financial Times and the Wall Street Journal – Profile also offers publications such as the Washington Post, the Guardian and the Daily and Sunday Telegraph.

Several major international news services such as Associated Press and Asahi are included, along with a wide range of authoritative sources on international politics, business, markets and finance.

Profile also offers access to McCarthy Online, which contains full text articles selected for their relevance to business and commerce from more than 60 of the world's top business publications.

## It's the Tory line

*TORY politicians and party workers all over the country are being urged to join MicroLink.*

*The Conservative Computer Forum, an organisation formed 10 years ago to promote computing among party members, is behind the campaign.*

*Committee member Warwick Childs said: "Perhaps the greatest potential a computer can offer – electronic communications – has up to now been sadly neglected in the Conservative Party. In this respect we are well behind the other main political parties.*

*"At present we have something approaching 200 CCF members – think what an advantage it would be if they were able to provide a nation-wide electronic mail network for the benefit of their constituencies.*

*"These people are our prime targets for linking together electronically. Eventually we hope to see all constituencies, MPs, party officials and offices on the MicroLink system".*

## Software speed-up

IT's now quicker and easier to use the massive MicroLink library of free computer software.

With the number of titles available for downloading fast approaching the 600 mark, subscribers were in danger of experiencing difficulty locating specific programs. As a result MicroLink has completely redesigned the telesoftware database to speed up the process of selection.

Users can now choose from a menu a complete database of program titles suitable for their own particular make of computer.

## The social side wins

MICROLINK subscriber Nigel Inwood temporarily abandoned a career in accountancy and law to help his parents open a business. Fourteen years later he very much doubts he'll ever return to the office.

The business his family took over was Judges Bakery, in the High Street of Hastings old town near the harbour.

With the addition of a restaurant, it became the only bakery to be listed in tourist guides such as Egon Ronay and the Good Food Directory.

"I'm on MicroLink for pleasure, because computing is my hobby", said Nigel Inwood. "Despite its international fame this is still a one-shop business – my Email communications are more likely to be social than official.

"I chose MicroLink because it offered more interesting and entertaining features than the other systems available".

## Third World connection

**A LEADING independent authority on conditions in Third World countries has joined MicroLink to improve its international communications.**

**The Overseas Development Institute was formed nearly 30 years ago to study and monitor economic and agricultural development abroad.**

**At any one time it has as many as 20 research projects underway in different parts of the world. As well as publishing vital information about conditions in various countries, the ODI also tries to influence the decisions of policy makers around the world.**

**"We have an ongoing need to communicate with researchers and other institutions worldwide", said ODI spokesman Peter Gee.**

**"As part of a project to improve communications we are looking at electronic messaging, and MicroLink is as good a base as any to start with its excellent Email and telex facilities".**

**YOUR chance to join MicroLink – Page 15**

# Seek and ye shall find

## Into adventures with Bill Brock

**WHEN you sit back and think about the majority of adventures you have played, you will realise that they contain many of the facets of a mystery novel. You are given, or have to find, various clues that enable you to learn about another situation requiring a hunt for more hints to yet another set of clues.**

You may also meet characters along the way whom you have to interrogate to extract some vital piece of information. What is also quite common, is the final showdown revolving around the unmasking of a master villain or criminal.

Some adventures carry this hunt for clues to its logical conclusion by creating a game that is as close to a true detective mystery as you can get. Strangely enough, most of those adventures appearing on the Amstrad that would also be considered as "true detective stories", have also been programs that have achieved high scores amongst the ratings for adventures.

This could well be because the structure of a detective story requires more pre-planning on the part of the writer, with a very logical progression of clues from start to finish. Each major problem solved providing another link in a long chain. In other types of adventure, individual puzzles may only need to be linked within a small section of the whole adventure.

The latest detective story to cross my screen is Killed Until Dead, from US Gold. Following the trend of previous games of the same genre, this too, should perform well in the ratings. Not only are the mysteries interesting to solve and the graphics good, but the way in which the player interacts with the game are novel and will surely be a blueprint for many adventures in the future.

The game is controlled by joystick (or arrow keys). No typing is needed. All questions and answers are supplied – you just have to make the right selection. In the persona of Hercule Holmes, you pursue your investigations almost wholly from the comfort of your own chair.

The scene is set in the Gargoyle Hotel, where five of the world's finest mystery writers are getting set to turn fiction into fact with a festival of mayhem and murder. You alone are in a position to foil their worst excesses.



The time is twelve noon and you have until midnight to find out who will kill whom, with what, where the dirty deed will take place and finally the motive behind the murder.

Fortunately, your comfortable chair is behind a fairly hi-tec desk. It has video monitors covering all main locations and a telephone complete with video link.

There are three tape recorders that can be connected to the monitors and an ordinary looking notebook that will automatically record all the information you discover. There is also a folder giving brief background details on each of the suspects. The only time you need leave your chair is for the occasional break-in to a suspect's room to gather additional clues.

Amstrad versions are only available for CPC machines and come on disc or cassette. The opening sequence includes an optional demo mode that gives you a good idea of what is expected, and is worth watching.

Having decided to take up the challenge, you are offered four difficulty levels: Elementary, my dear Watson, Murder medium rare, Cases for the cunning, and Super sleuth. Each level gives you a choice of several murder mysteries to solve. In all, there are 21 different cases.

The critical stages are the interrogations with the suspects (via video phone). Their answers and physical reaction to four crucial questions regarding – murderer, victim, weapon and place will lead you to your final confrontation. Should your accusation be at fault, you are shot on the spot!

To get a suspect to answer your questions, you must shake their confidence by proving you know something about them that they thought was secret. To get this information, you have to search their rooms. To break-in to a room it must be empty – check with your video monitor – and you must answer a trivia type question.

These questions all have murder/mystery as a common theme and should you fail to answer correctly any attempt at a further break into that room is prohibited for 10 minutes.

In addition to finding information that will rattle



Killed until – innovative

your suspect into talking, you may find clues to possible motives and also notes of times and places where they plan to meet each other during the day. These notes enable you to program your three tape recorders to snoop on their clandestine meetings.

By repeatedly talking to the suspects, and taking no other action, it is perfectly feasible to extract the basic facts regarding weapon, place and who is to be killed and by whom. Learning the motive requires a more methodical approach. It is much more satisfying to KNOW you have the right answer than clutching at straws and simply guessing.

When questioning a suspect, they will always give you an answer of some sort such as: "If Agatha is the killer, the body won't be Mike's" or "If the deed's done with the poison a life will end in the foyer".

Your magic notebook will record these as separate entries under SOURCE (spelt SCOURCE!), KILLER, WEAPON and ROOM. What it does not tell you is whether the entry was positive or negative – "...the body WON'T be Mike's"; "...a life WILL end in the foyer". The notebook also records what you found when you searched the rooms, what was overheard on the tape monitors and any telephone calls you have had offering information.

The graphics are simple but well drawn and amusing, especially when the facial expressions change as you ask questions that force a truthful answer. To make life that bit easier, the more significant answers are highlighted in your notebook.

Killed Until Dead is not difficult to play. With so many plots to choose from it should be perfectly feasible to return after a few days and tackle a previously solved game – with almost as much enthusiasm as when you started.

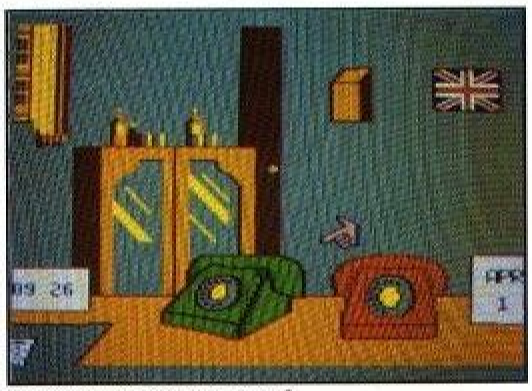
The instructions are fairly easy to understand, even though they are printed using a very small typeface. On the review copy, getting started using the disc version required RUN "DISK" and not RUN "KILLED" as stated.

FOR those that have enjoyed the television programs Yes Minister and Yes Prime Minister, the computer game of the latter by Mosaic Publishing is a must.

Game operation is in some ways similar to Killed Until Dead, with the flow of events decided by multiple choice questions. Joystick control or single key entry makes for ease of play with little or no interruption to interfere with the weighty decisions to be taken at Number 10.

The graphics are not exactly awe inspiring, consisting of a general view of the PM's office. A movable cursor is directed to various items around the room and on the desk to initiate the different actions to be taken by PM Hacker. Look at the diary to check the day's appointments, zero in on the teleprinter, telephone or intercom to receive messages. Check the safe to get your latest popularity ratings.

Point to the door to leave the office, either for a



Yes Prime Minister – too easy?

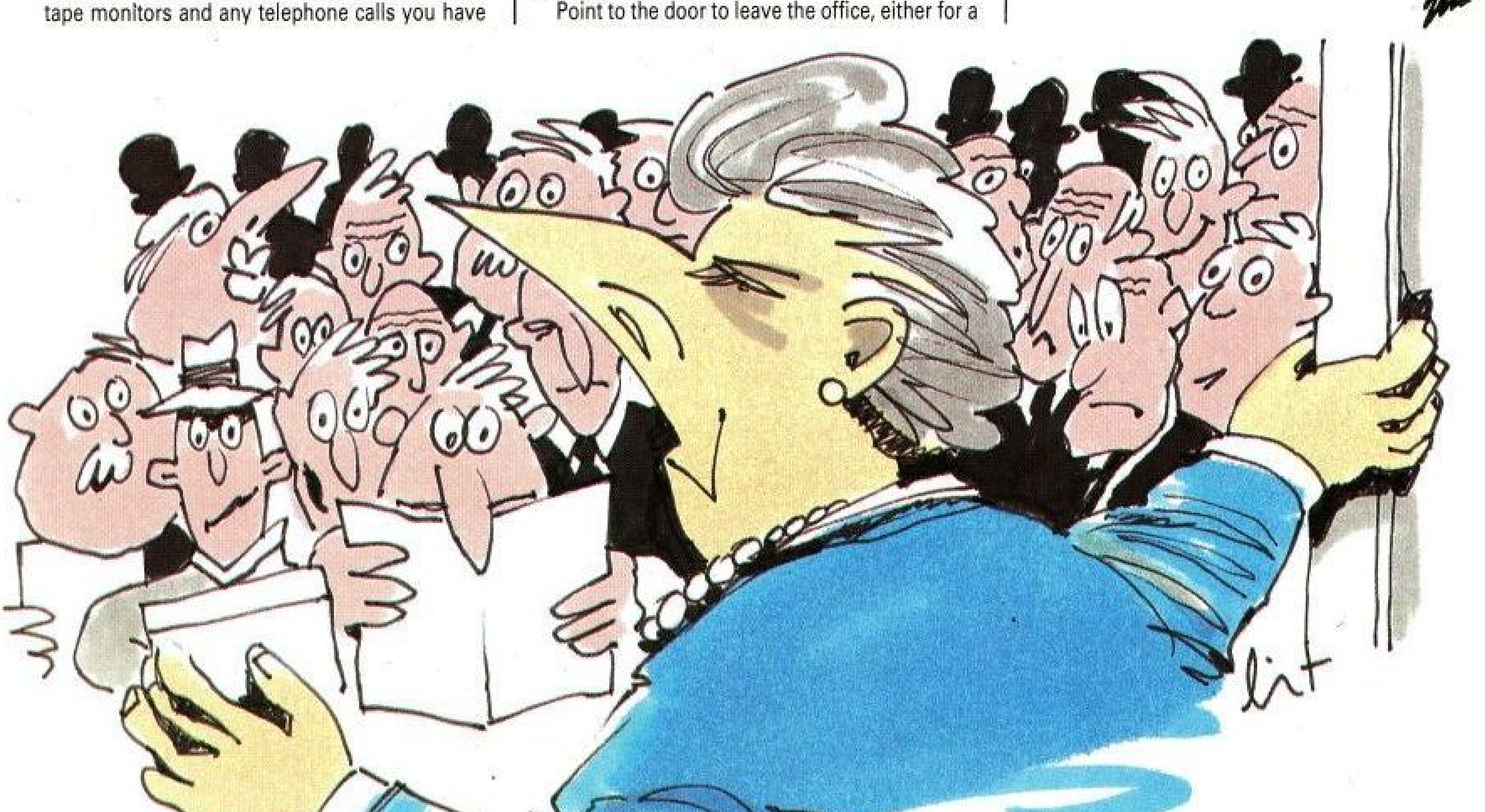
pre-arranged appointment or to hasten to the offices of Bernard (Private Secretary) or Sir Humphrey (Cabinet Secretary), to solve the latest crisis. There is even a suggestion box on the wall that warrants a regular looking into.

The main aim of the game, apart from just enjoying the repartee, is to last out one week in the high office of PM and finish with a higher popularity rating than when you started.

Although there is said to be some randomness in what happens – so enhancing replays of the game, I cannot say I noticed any great changes in the major topics that arose throughout my weekly stints as the Right Honorable James Hacker. On the other hand, there are so many multiple choice decisions to make, additional weeks in Downing Street were still enjoyable.

Using the disc version, I found a week passed in just over an hour. You may save the game position after each day's labour but unless you are desperately striving to get maximum popularity, this facility did seem a little unnecessary. Each day is a separate program and must be loaded in as you proceed.

Yes Prime Minister is available for both CPC and PCW Amstrads (cassette and disc). The



playing format runs along the same lines as Mosaic's The Archers and Adrian Mole, games but I think the characterisation and atmosphere of the TV program is more accurately reproduced (as are the digitised pictures of the main characters).

I thoroughly enjoyed playing YPM, but I do wonder about its staying power in comparison with the average adventure's much greater playing time.

THE year is 11349 and you have been assigned to collect 24 pallets of forms from an official printing press. The forms are in fact forms to request forms to request black binders for request forms – a fairly normal situation for Stellar Control

This could well be one of your better days. Filling out and filing forms is not the most exciting of jobs and the "printing press" referred to is on a space station some light years away. The trip should break the normal routine nicely. Little do you know how nicely normal routine is going to be broken.

Stationfall is Infocom's sequel to their successful space opera Planetfall. In that you rose from being an Ensign Seventh Class, relegated to sweeping and cleaning details, to Lieutenant First Class – pushing paper. Your meteoric rise, wholly due to your having saved the planet Resida from total destruction. Not a bad day's work really...

Helping you with your problems on Resida was a cheerful little robot called Floyd. You are delighted to find that he is assigned to you for this trip to Gamma Delta Gamma 777 G 59/59. When you arrive, you find that all is not well. Some of the robots seem to have developed anti-human tendencies and there is an alien spaceship docked in one of the landing bays.

The Commander's log refers to a strange metallic pyramid found aboard the alien ship and you get decidedly jittery when it appears that there is now no-one aboard the Space Station.

If you have a disc drive, like science fiction, programs with a heavy dose of humour and have a few days to spare, you will just have to save up for Stationfall. Like all Infocom games, it is logical, has plenty of locations to explore, has reams of good text and is not cheap.

Like other adventures from the same source, it also requires words to be entered in full (well, the first six letters anyway), continuously accesses the disc, thereby driving the more impatient among us round the bend, and needs the fairly obvious operations to be performed in painstaking detail.

However much I deplore this slow and tortuous path I have to tread in order to play Infocom games – they are all worth it in the end. I just love the response to having entered SAVE: Floyd's eyes light up. "Oh boy! Are we gonna try something dangerous now?". This little robot really contributes to making Stationfall what it is, a classic Infocom adventure.

Packaged in the box are a full set of diagrams for the space station and just what you've always wanted, a cloth patch proclaiming your rank of



Lieutenant First Class (boldly going where angels fear to tread!).

At least the diagrams will help you with your mapping, perhaps even eliminate the need for maps at all. There are also some samples of the forms used by Stellar Control – read them carefully, not only are they amusing but will also help you on your travels.

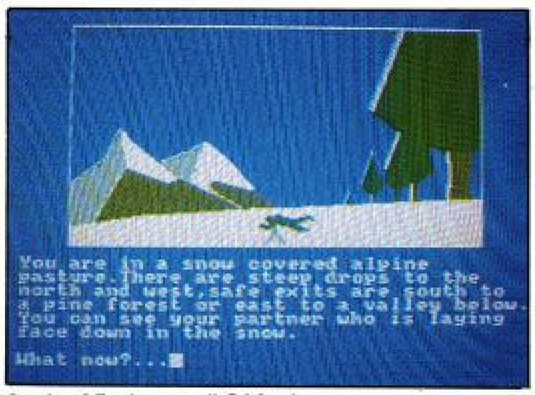
Once you start touring the space station and its attendant "village" of old spaceships, you will begin to get an idea of what you have to do (read the Commander's log as soon as you can). The solution is straightforward in theory but as with most Infocom games, although perfectly logical, a little devious in practice!

Watch out for danger at almost every major step forwards and remember that you are the only one you can trust.

CASTLE of Eagles would appear to be the product of a new software house, S & M Software. I suspect that the game is not available through normal outlets, but is obtainable direct from S & M at PO Box 332, London SE15 3LE. Cost is £4.95.

You play the part of an agent in the last World War. Parachuted into enemy territory, you must break into a fortified castle and photograph top secret plans that are vital to the Allied war effort.

Right from the start things go wrong. Your aircraft is shot up and your equipment has to be thrown out to lighten the load. You and your




*Castle of Eagles – well GAC-ed*

partner have to jump out much further from your objective than was planned, and he is killed on landing.

To find your way to the castle and get the equipment you need is no picnic. The snowy landscape that meets your eyes is treacherous and everywhere looks the same under that deadly white mantle.

Spotter aircraft must not see you, and wild dogs must be dealt with before you can get to your objective. There are vague impressions of Alistair Maclean's Where Eagles Dare – but do not rely too heavily on this clue to solve the adventure.

My review copy had a few minor bugs, but hopefully these will have been ironed out of production copies. The game is written using Incentive's Graphic Adventure Creator and is well thought out. There are plenty of graphics, even if a lot of them look the same.

The initial stages through all that snow bring a chill to the bones. The puzzles are quite good, but I would have preferred a few more, even at the expense of fewer graphics.

It is good to see that individuals (?) are still prepared to try and take on the mega-producers of software, especially when they are adventures. Lets hope S & M learns and prospers.

**RATINGS**

| | Killed Until Dead | Yes Prime Minister | Stationfall | Castle of Eagles |
|---|---|---|---|---|
| Plot | 67 | 70 | 80 | 58 |
| Atmosphere | 72 | 70 | 82 | 62 |
| Addiction | 75 | 60 | 80 | 60 |
| Difficulty | 58 | N/A | 78 | 58 |
| Overall | 72 | 67 | 81 | 60 |



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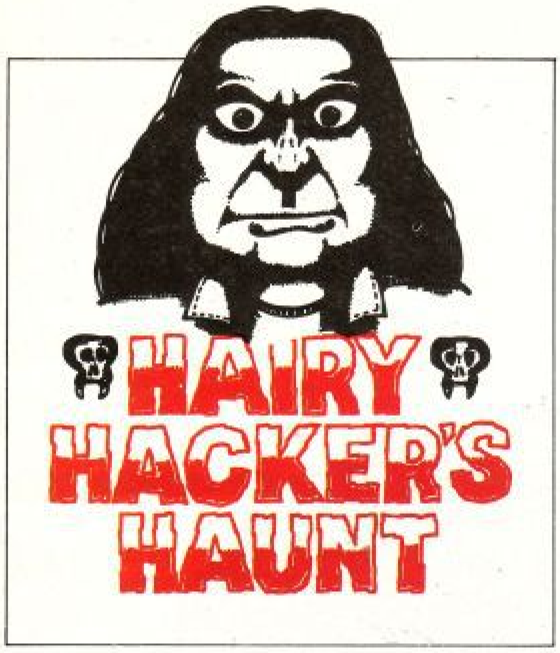
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| | LSP-100 | LX 800 |
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| NLQ mode | 30 cps | 25 cps |
| Draft Pica (10cpi) | 150 cps | 150 cps |
| Draft Elite (12cpi) | 175 cps | 180 cps |
| Buffer | 4k | 3k |
| **Downloadable Characters** | 239 Epson mode 93 IBM mode | 6 |
| **Built-in fonts** | 1 | 2 (NLQ only) |
| **Paper Feed** | | |
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| Bottom feed | Yes | No |
| **Warranty** | 2 years | 1 year |
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# The iceman cometh

**Vax is out and about in the garden. But there is not much work to do in the soil when the white stuff lays round about, deep and crisp and even**

**MULTITUDINOUS ancillary felicitations an' all that folks. Another Hairy Hackers column hits the vaned air conditioning unit, this time on location in: The garden.**

Terrific, a couple of months back Ed saw the Haunt that was done in the bathroom and liked it so much, that he wants it done in another spot. That other spot was the greenhouse. Unfortunately, this was converted into matchwood and ground glass by the recent storms, and took a modest collection of exotic succulents and cacti with it.

So, here we are, freezing our little toes in the year's first snowdrifts, icicles hanging off our little noses, disc drives freezing up, knocking the blocks off of snowmen, and watching all these very cold monkeys running around trying to find their bearings.

Despite the weather, plenty of stuffs to chew over this month, so I'll get to grips with it (dunno where Justin's got to this month, so I'm on me own). Seconds out, round one. Ding ! Who threw that snowball?

Hopefully, the last round in the Elite (Ed got the PC version last week, with filled graphics, wow) saga. Timothy Bell has finally managed to honestly come by a cloaking device. To do this, you have to blast an Asp, nick its cargo pod, and hit escape. Bingo, you can now vanish.

Tim also says that it isn't easy being a dolphin as you can't hold a joystick. Put your analyst on danger money, baby.

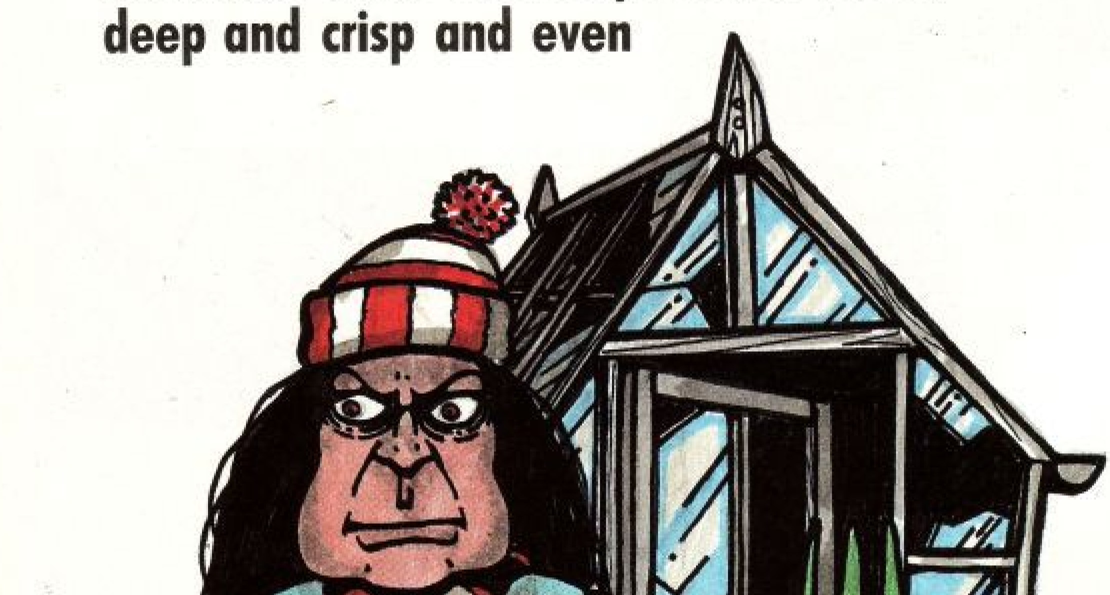
## Woe, woe

Another letter (yes, that makes at least two so far) from the pile, from Glynn White of Balloch (!), tells tales of woe of Justin's Pacific poke. Pleasant messages like "SYNTAX ERROR IN 659" appear on the screen, and his 464 is accidentally and brutally hurled at the nearest window. Is he alone, or have we made a cock-up ? I'll ask Justin over a pint of zider.

Isn't it amazing how the wind blows the snow into weird shapes? I mean, this lump here looks ... Hang on, that's Big Sol in a snowdrift. Finding her in a snowdrift isn't difficult; its digging her out that's the tricky part. I mean, I wouldn't say she's fat, but when she goes to cat heaven, she'll get stuck in the pearly cat-flap. While I dig her out, you can see what good 'ol "Mighty" Joe Garner has been up to.

The busy lad has been knocking up all kinds of stuff, including some programs Lucky for the 65 per cent, or whatever it was, of you who said they wanted more down-to-earth Basic listings in the mag, four of them are just that.

The first one is a slightly familiar scrolling message routine with variable speed (spot ye olde English spelyng of "Programme" inn lyne 34):




```
5 INK 0,0:BORDER 0:PAPER 0:MODE 0
10 REM ' Scrolling by J.P.Garner (The
    Mighty Joe) 1987
20 REM ' Note the set up needed prior
    to calling the routine (lines 100
   0 onwards)
30 REM ' enter your own text.
31 REM 'to work in mode 1 change 4 of
    the 3c s in line 40 to a7 and e6
   ,1f to e6,0f
32 REM 'change 06,08 in lines 60 and
    70 to 06,10
33 REM 'TO FIND YOUR FAVOURITE SCROLL
    ING SPEED PRESS < OR > ONCE YOU GE
    T TO A SPEED YOU LIKE
34 REM ' BREAK THE PROGRAMME, TYPE 'P
    RINT T' THEN CHANGE THE T IN LINE
    1075 TO THE VALUE DISPLAYED AND DE
    LETE LINES 1070,1071
40 DATA 3a,6f,90,3c,3c,3c,3c,3c,3c,3c
    ,3c,e6,1f,32,6f,90,f5,3e,0f,cd,de,
    bb,f1,21
50 DATA 00,00,11,00,00,cd,c0,bb,3a,6f
    ,90,5f,3e,ff,3f,9b,5f,21,0e,00,7a,
    f6,ff,57
60 DATA cd,c3,bb,21,72,90,46,05,70,06
    ,08,2a,70,90,c2,56,90,21,72,90,06,
```

```
    04,70,2a,70,90,23,22,70,90
 70 DATA 7e,fe,ff,cc,66,90,06,08,7e,f5
    ,c5,e5,cd,fc,bb,e1,c1,f1,05,c8,23,
    c3,56,90
 80 DATA 21,70,90,23,23,22,70,90,c9,00
    ,73,90,4,end
 90 a$=".......... Put your lovely tex
    t in here, anything will do, just
    make sure you stick a &FF at the e
    nd of the end of this string, ANO
    THER BRILLIANT ONE BY MIGHTY JOE..
    .."
100 a$=a$+CHR$(&FF)+"..........

110 a=&9000
120 READ b$:IF b$="end" THEN GOTO 150
130 POKE a,VAL("&"+b$)
140 a=a+1:GOTO 120
150 FOR a=1 TO LEN(a$):POKE &9072+a,A
    SC(MID$(a$,a,1)):NEXT
1000 SYMBOL &FF,0,0,0,0,0,24,24,0: RE
     M set marker character to look l
     ike a full stop
1010 x=200:y=150:REM set corners of "
     plaque" through which to scroll
1020 ORIGIN x,y,x,x+224,y+16,y: REM d
     efine window
1040 INK 15,6:REM set colour (is disp
     layed in ink 15)
1045 INK 1,13:BORDER 13:PAPER 1:CLS:P
     APER 0:CLG:REM just for effect d
     elete if you want
1050 CALL &9000
1070 k$=INKEY$:IF k$="<" THEN t=t-1
1071 IF k$=">" THEN t=t+1
1075 FOR a=1 TO t
1076 NEXT
1080 GOTO 1050
```

OK, that one over with, here's a much better flashy routine to put whumping great letters all over the screen, with bars of colour zipping up or down them.

The original proggy (sent in on a tape) had a nice command called GRAPHICS PEN in it. Those with 6128s and 664s (wot are they ?) would have had no trouble, but yours truly took a few minutes to spot the cause of SYNTAX ERROR coming up during a SAVE command. There is a lesson to be learned here. Cop this lot:

```
10 REM 'Stretched text & colour rolli
   ng routine by J.P.Garner (The Migh
   ty Joe) 1987
20 REM 'section height is the number
   of pixel lines an old pixel line o
   f text takes up
30 REM 'band height is the height in
   pixel lines of each band of colour
    try 48 for SH and 4 for BH or 4 a
   nd 2 or 10 and 3
35 REM 'Slight changes by VAX for 464
    owners
40 INPUT "section height";h
50 INPUT "band height";dsp
60 IF h>50 OR h<1 OR dsp<1 OR dsp>h T
   HEN h=10:dsp=3
70 e=1:c=1
80 BORDER 0:INK 0,0:PAPER 0:MODE 0
90 DIM i(14,100)
100 FOR a=1 TO 14:READ b:i(1,a)=b:NEX
    T
110 FOR b=2 TO 14:i(b,1)=i(b-1,14):FO
    R a=2 TO 14:i(b,a)=i(b-1,a-1):NEX
    T:NEXT
120 text=0:TAG
130 BORDER 26:BORDER 0
140 FOR a=1 TO 15:INK a,2:NEXT
150 FOR a=399 TO 399-(8*h) STEP -1*h
160 FOR b=1 TO h STEP 2
170 ORIGIN 70,a-b,70,639,a-b,a-b+2
180 PLOT 0,100,c:'Use GRAPHICS PEN c
    on 6128
185 'The PLOTR ,,nn s can be changed
    to GRAPHICS PEN on 6128s too.
190 MOVE 0,INT ((399-a)/h)*2:PRINT"TH
    E";:PLOTR 0,0,(15-c):PRINT" MIGHT
    Y";:PLOTR 0,0,c:PRINT" JOE";
200 e=e+1: IF e=dsp THEN c=c+1:e=1
210 IF c=15 THEN c=1
220 NEXT
230 NEXT
240 TAGOFF
250 FOR a=1 TO 8:INK a,i(1,a)
260 NEXT
270 FOR a=1 TO 14
280 FOR b=1 TO 14
290 INK b,i(a,b)
300 NEXT
310 NEXT
320 GOTO 270
330 DATA 5,2,1,4,3,6,15,24,25,16,7,8,
    17,14,11
```

That one is very pretty, but how about something useful, I hear you say. Well, Joes' stuff includes this wee utility to find out where machine code programs are going to go, and how long they are. This sort of thing is one of the basic needs of a hacker, and is included in most "toolkits", but this might get one or two of you off to a flying start:

```
1 REM'Address and length finder by J.
  P.Garner 1987
4 REM ' for tape type '|TAPE' after y
  ou have loaded this but before you
  run it.
10 DATA 21,71,0,46,21,65,0,11,0,c0,cd
   ,77,bc,ed,43,72,0,ed,53,74,0,2a,74
   ,0,cd,7a,bc,c9,end
20 a=&43
30 READ b$:IF b$="end" THEN GOTO 60
40 c=c+VAL("&"+b$):POKE a,VAL("&"+b$)
50 a=a+1:GOTO 30
60 INPUT "name";a$
70 POKE &71,LEN(a$)
80 FOR a=1 TO LEN(a$):POKE &64+a,ASC(
   MID$(UPPER$(a$),a,1)):NEXT
90 IF c<>2799 THEN PRINT "lucky I rem
   embered to check sum this one":END
    ELSE CALL &43
10000 CLS:PRINT:PRINT:PRINT
10050 PRINT "addrs ";HEX$(PEEK(&74)+P
      EEK(&75)*256)
10060 PRINT "length ";HEX$(PEEK(&72)+
      PEEK(&73)*256)
```

After finding out where code goes, it sometimes helps to know where you have to jump to to make the code work. You see, not all programmers (especially the hairier ones) start their code at the beginning, but frequently start half way through, or just after their data, or leap into a block of code that they loaded somewhere else previously. Anyway, this one will tell you where to go (or send an SAE and I'll tell you):

```
1 REM'Entry finder by J.P.Garner 1987
2 REM ' run, then ignore all error me
  ssages, press escape till the break
   message appears
3 REM 'then type 'print hex$(peek(&76
  )+256*peek(&77))' and the entry adr
  ess will appear. if you then type '
  call &entry address on screen the p
  rogramme will run.
4 REM ' for tape type '|TAPE' after y
  ou have loaded this but before you
  run it.
10 DATA 21,71,0,46,21,65,0,11,0,c0,cd
   ,77,bc,ed,43,72,0,ed,53,74,0,2a,74
   ;0,cd,83,bc,22,76,0,cd,7a,bc,c9,en
   d
20 a=&43
30 READ b$:IF b$="end" THEN GOTO 60
40 POKE a,VAL("&"+b$)
50 a=a+1:GOTO 30
60 INPUT "name";a$
70 POKE &71,LEN(a$)
80 FOR a=1 TO LEN(a$):POKE &64+a,ASC(
   MID$(UPPER$(a$),a,1)):NEXT
90 CALL &43
```

Oh orright, now a gamesy pokeykins. There wuz a Storm poke, but we've run that one more often than I care to remember, so we'll run Death Wake. Pleasant little zippy title eh ? Put ze rewound tape in ze relevant hole and run zis:

```
1 REM By J .P.GARNER (THE MIGHTY JOE)
2 REM 'DEATH WAKE POKE, INDUSTRUCTIBI
  LITY.
3 REM 'AS ALWAYS LINES 100 TO 999 CAN
   BE ERASED BUT LINE 1000 MUST BE IN
  CLUDED.
10 CLS
20 DATA 06,8,11,00,c0,21,40,1,cd,77,b
   c,21,0,12,cd,83,bc,cd,7a,bc
30 DATA C9,END
40 a=&70
50 READ b$:IF b$="END" THEN GOTO 70
60 POKE a,VAL("&"+b$):a=a+1:GOTO 50
70 a$="CODE.BIN"
80 FOR a=1 TO LEN(a$):POKE &13F+a,ASC
   (MID$(a$,a,1)):NEXT
85 CALL &70
90 POKE &1299,&AF:POKE &129A,&AF:POKE
    &129B,&AF
100 a$=CHR$(74)+CHR$(79)+CHR$(69)+SPA
    CE$(29)+STRING$(6,CHR$(57))+"  "
    +SPACE$(29)+STRING$(6,CHR$(57))
110 FOR A=1 TO LEN(a$):POKE &18AF+a,A
    SC(MID$(a$,a,1))
115 NEXT
120 DATA 72,65,67,75,69,68,32,66,89,3
    2,84,72,69,32,77,73,71,72,84,89,3
    2,74,79,69,32,END
130 A=&1B8A
140 READ B$:IF B$="END" THEN GOTO 100
    0
150 POKE A,VAL(B$):A=A+1:GOTO 140
160 MODE 1:CALL &1200
1000 MODE 1:PRINT "Press any key when
      motor stops.":WHILE INKEY$="":W
     END:CALL &1200
```

Who's been a busy lad then ? Well, this sort of prolific panaesthetic progette production cannot

go unrewarded. Watch your mailbox, Joe. Perhaps a game or swatch of discs might escort your tape home.

Ha har, he says, wiping the icicles from his (now) shaggy beard, look wot I've found. Something from a creature known to all as Colin Findlay, which says:"I was going to write in to Vax, but I decided not to". Cheers a bundle mate ! Didn't stop me from finding it though, did it ? Big Brudder is Vatchink You. Contents of letter (How To Wind Spellbound and Influence People) follow:

Drop the advert. Pick up the teleport key, then get the glowing bottle. Go to the roof, and pick up the bottle of liquid and the wand of command.

## Wakey, wakey

Then teleport (as the teleport pad is in front of Florin the dwarf, just leave it there for the moment). Give the bottle of liquid to Florin and then take it back again as this will replenish your energy. Command Florin to wake up.

Go to the lift and move to the second floor. Get the elf horn from Samsun the Strong, and the mionlir (the hammer) from Elrand Halvelven. Go to the lift and blow the elf horn and command Thor to come. Give him the mionlir, and command him to help.

Thor will smash the control box, fixing it. Get the white herring, and go to the basement and cast the spell Fumanticus protectum, which will allow you to go past the first floor without being gassed.

Go back to the lift and command Thor to sleep (to keep him alive) then use the elf horn again and command Florin to come. Put him to sleep and get the teleport pad. Once you have found it, drop it in the lift so that when you are replenishing energy throughout the game, you can always come back to the lift, and to Florin (remember to keep awakening him and putting him back to sleep).

Get the laser from the ground floor, and go to the secret tunnel entrance, then blow the elf horn and command Lady Rosmar to come. When she arrives, give her the laser and ask her to help. She will then blow a hole in the wall, revealing the secret passage.

If you have by now dropped the glowing bottle, the banshee will have appeared. If you command him to help, he will give you lots of useful clues. But now that you have smashed the bottle, how will you get through the dark room without getting killed?

The answer here is simple: Go and stand in the sticky liquid and cast the "Armoris photonicus" spell. Your armour will now glow, enabling you to get through the dark room with no problems whatsoever.

To read the engraved candle you will need the broken glass (from the smashed bottle). To get past the wall give Elrand Halvelvand the trumpet and command him to help. He will knock down the wall.

## Cast a clover

Pick up the lumps of stone, then take them to the fourth floor, and drop them a few steps away from the tower. Go to the pit on the ground floor and summon Samsun. Give him the javelin and command him to help. He will place a platform in the pit.

Get the shield, the engraved candle and the four leaved clover. Summon Lady Rosmar, and drop the clover next to her.

Now cast the candelium illuminatus spell, get the crystal ball, the piece of talisman and the tube of glue, and give them to Florin. Command him to help and he will make a magic talisman for you. take it and cast "project physical body", light the candle to read the ancient scroll.

To read the runestone you will need the book

of runes. Finally, if you use these hints to reach Gimbal, cast the Crystalium Spectralis in his presence. Ta da ! (Corny innit ? Shut up.)

Meanwhile back amongst the snowflakes a neophyte hacker is emerging into the limelight, going by the name of Adam Todd (the one in Fife). Due to health reasons, he is no longer able to work, and bought himself a 464. All this lot you're about to see was done on a 464 and Maxam/A.D.A.M. tapes; no roms.

## Busy fella

Mind you, if a guy can hack his way through this little lot with no more than a couple of tapes, then there must be someone in a software house somewhere who might give him a part-time job. Let's face it, in doing this little lot, he's done more work than Justin and I have together in this month!

First one off the Adams production line is a little number for Kung Fu Master, giving gleat numer of extla rives. Lewind tape to start and run routine, ah so:

```
5 MEMORY &203F:TOT=0
10 FOR B=&9000 TO &9041
15 READ D$
20 C=VAL("&"+D$):POKE B,C:TOT=TOT+C
25 NEXT B
30 IF TOT<>&19F4 THEN PRINT "ANUVVER
   ERROR IN DATA":STOP
35 LOAD"":CALL &3A6A
40 LOAD"!",&2040
45 CALL &9015
50 DATA E5,21,25,6A,36,14,21,37,BD,36
   ,CF
55 DATA 23,36,88,23,36,88,E1,C3,37,BD
   ,21
60 DATA 00,90,11,37,BD,01,15,00,ED,B0
   ,21
65 DATA 40,20,11,40,00,01,F2,01,ED,B0
   ,21
70 DATA 40,00,E5,11,00,BB,D5,01,F2,01
   ,C5
75 DATA 21,07,B8,E5,21,BB,02,E5,F1,F3
   ,C9
80 REM Change 14 in line 100 for no o
   f lives
85 REM but checksum will change too.
```

Still in oliental vein, another pokeyette for Yie-Ar Kung Fu that will get any old joystick moron up to black belt (I've got my red one now, by the way, so remember to send in only original pokes, or else !):

```
10 MEMORY &203F:TOT=0
20 FOR B=&9000 TO &9027:READ D$
30 C=VAL("&"+D$):POKE B,C
40 TOT=TOT+C:NEXT B
50 IF TOT<>&FDE THEN PRINT "ERRUR":ST
   OP
60 LOAD "":CALL &9000
70 DATA 21,14,90,11,37,BD,01,14,00,ED
80 DATA B0,21,FF,AB,11,40,00,C3,AF,39
90 DATA E5,21,3E,88,36,00,2E,CF,22,37
100 DATA BD,3E,88,32,39,BD,E1,C3,37,B
    D
```

Wot else do we have drifting around with the snow here ? Ah, a lenslok blower for Graphics Adventure Creator. Very nice Adam, especially as I fail on lenslok every other time anyway. Unfortunately, Ed has seen this one and stomped on it. Still, come the glorious revolution . . .

While we're waiting for it, have another Ghosts-n-goblins poke. Yes, I do know that we've flogged this one to death but Adam's one fixes it so's you only lose lives when you fall into the pits, so you'll get to see more of those amazing sprites. Run this one at it, while I lob snowballs at the wife:

```
10 MEMORY &12FF:MODE 0:BORDER 0
20 FOR P=0 TO 15:READ C:INK P,C:NEXT
30 LOAD"GHOSTPIC.SCN",&C000:LOAD"!COD
   E"
40 POKE &50A8,&0A: REM LIVES (10)
50 POKE &8237,&C9: REM MONSTER PROOF
60 CALL &5000
70 DATA 26,13,0,15,24,6,16,2,14,1,3,1
   1,10,9,18,25
```

Short one that, so while I get my own back on the wife for using a mud-lined snowball, you lot can get on with an infinite lives pokette for Back to Reality (where's that?):

```
1 MODE 1:INK 0,26:INK 1,0:INK 2,9:INK
  3,13
3 BORDER 26:LOAD"!",&C000
5 OPENOUT "!D":MEMORY &12FF:LOAD "!"
7 INK 0,0:INK 1,26:INK 2,15:INK 3,6
9 POKE &79B2,0:CALL &7611
```

Oh yes, I remember. Reality is for people who cannot face science fiction; vote against VAT on books, folks ! Doesn't the wife scream loudly when you thrust snowballs down her knickers ?

Thrusting? That reminds me of Adam's next two pokes (not doing badly, is he?). Pokeykins number one is for Thrust, of which there is apparently a version that my last poke didn't work on. No matter, 'cos this will get it with 50 lives and extra fuel (take it away, Adam):

```
10 MEMORY &39FF:BORDER 0:MODE 1
20 LOCATE 18,2:PEN 1:PRINT "THRUST"
30 WINDOW#1,15,27,10,10:WINDOW #2,15,
   27,13,13
40 LOAD"!THRUST1":TOT=0
50 FOR B=&9000 TO &9039:READ D$
60 C=VAL("&"+D$):POKE B,C
70 TOT=TOT+C:NEXT B
80 IF TOT<>&1C99 THEN PRINT "DATA ERR
   IT":STOP
90 CALL &9019
100 DATA E5,F5,3E,51,32,5E,71,EE,C1,3
    2
110 DATA 66,71,D6,08,32,38,BD,CD,37,B
    D
120 DATA F1,E1,C3,BC,BC,3E,C3,32,BC,B
    C
130 DATA EE,68,32,38,BD,EE,FB,21,BD,B
    C
140 DATA 77,23,AF,77,21,00,90,11,50,0
    0
150 DATA 01,19,00,ED,B0,CD,00,A3,C9
```

The last from the Adam Todd stable this month, but hopefully not the last ever, is Thrust II. Infinite lives on this. Have fun:

```
10 MEMORY &62FF:BORDER 0:MODE 1
20 LOCATE 16,2:PEN 1:PRINT "THRUST II
   "
30 WINDOW #1,15,27,10,10:WINDOW#2,15,
   27,13,13
40 LOAD"!THRUST":TOT=0
50 FOR B=&9000 TO &9043:READ D$
60 C=VAL ("&"+D$):POKE B,C
70 TOT=TOT+C:NEXT B
80 IF TOT<>&1EA4 THEN PRINT "ERROR IN
   DATA":STOP
90 CALL &9000
100 DATA 21,00,63,11,00,A3,01,FF,01,E
    D
110 DATA B0,21,2B,90,11,50,00,01,19,0
    0
120 DATA ED,B0,21,BC,BC,3E,C3,77,23,E
    E
130 DATA 93,77,23,AF,77,EE,AB,32,38,B
    D
140 DATA C3,00,3A,E5,F5,AF,32,A8,26,3
    2
150 DATA BB,26,32,66,01,F6,88,32,38,B
    D
160 DATA CD,37,BD,F1,E1,C3,BC,BC
```

OK Adam, you take the Hack of the Month Award hands down. We know what you've got, so we'll get something different. Hope to hear from you again !

To round the month off nicely, ACU proudly (proudly?) presents:

### The VAX Guide to Computer Manuals

**Simply type ...** – Stand by for another load of untested typos.

***INSERT PRINT-OUT 1 HERE*** – And who had a late night then ?

**Remove from packaging** – With crowbar, hammer and hacksaw.

**The printout will look like this:** – Let us pray .... **LPRINT SPC(X^2*COS(I)):CHR$(27)+"M";** – You ain't seen nothin' yet.

**Character table** – What do I do to fill this blank page?

**Always turn the appliance off at the mains** – 'Cos our cheapo switches don't work properly.

**Boot disc** – The one that is hidden inside the plastic bag, under the packing tape, in the bottom left-hand corner of the monitor packaging which you have slung in the bin just before the dustmen came.

**May damage the equipment** – It'll catch fire, melt, and then electrocute you.

**La computer est la premiere magnifique** – Why has someone put a French manual in with my computer?

**Failure to use our own brand of ribbon/disc/cassette may result in data loss/equipment damage.** ***Threat, threat, threat.***

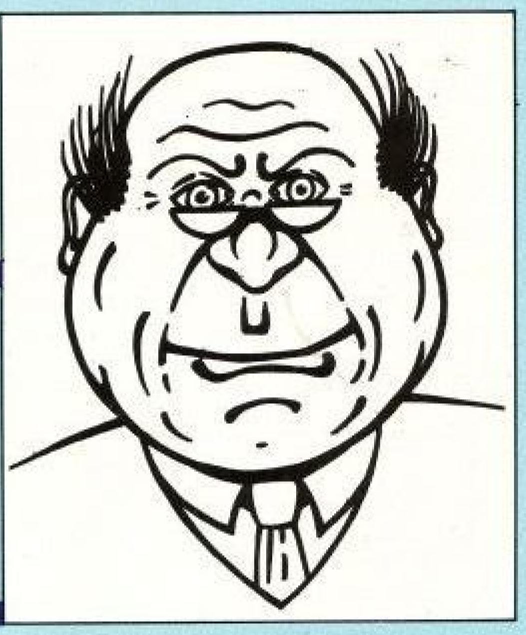
Right, parting shot time, but please excuse any typos this month 'cos it isn't easy typing with mittens on. A word of advice: Don't eat yellow snow. – **Vax & Suz**

# GALLUP SOFTWARE CHART

| | Move | Title | Comment | Last month | Market strength |
|---|---|---|---|---|---|
| 1 | Up | **Pro Ski Simulator** *Code Masters* 1.99 | It may be the time of year for ski games, but our tame instructor didn't think much of this simple game. Certainly no piste de resistance. | 2 | 100 |
| 2 | Down | **Grand Prix Simulator** *Code Masters* 1.99 | Still in the chart this establishes the Oliver twins as Code Masters number one programming team. Why buy Super Sprint when this is better and cheaper? | 1 | 96 |
| 3 | Up | **Joe Blade** *Players* 1.99 | Simplistic Mode 1 wander-around-the-prison game. 2D sprites, includes a frustrating juggle-the-letters puzzle to prime a bomb. | 4 | 69 |
| 4 | Up | **World Class Leaderboard** *US Gold* 9.95 | Fresh air, exercise, getting away from it all. All the excuses golfers use to justify their hobby fall flat when it comes to the home computer version. Still it's a good, relaxing game. | 7 | 55 |
| 5 | Down | **Dizzy** *Code Masters* 1.99 | Cute sprites don't hide the tedium in the Oliver's flickery multi-room jaunt. The market share drop of 85 to 54 points shows that this has not been a popular title. | 3 | 54 |
| 6 | Up | **Soccer Boss** *Alternative* 1.99 | You too can be Captain Bob Maxwell, control the whole first division if you like. No options to buy teams from rock stars though. Simple but absorbing. | 9 | 51 |
| 7 | Down | **Indiana Jones** *US Gold* 9.95 | Arcade conversion time again. Competently coded version of the game of the game of the film. I think I'll wait for the T-Shirt. | 6 | 48 |
| 8 | Non-mover | **BMX Simulator** *Code Masters* 1.99 | One of the best-selling Amstrad games ever. Cycling simulator best played with a friend – a good, fun game with a low price. Quite similar to Grand Prix simulator. | 8 | 47 |
| 9 | Down | **Renegade** *Imagine* 8.95 | A game which has been brilliantly programmed by John Brandwoodwith graphics by Mark Jones, but lacks taste. Horrific and violent. This month's fastest faller. | 5 | 43 |
| 10 | Up | **Six Pack** *Hit Pack* 9.95 | Bargain compilation with 1942 (OK), Split Personalities (very addictive), Scooby Doo (cute and confusing), Antirad (pretty and difficult), Fighting Warrior (Over-rated but good) and Jet SetWilly II. | RE | 42 |
| 11 | New entry | **Six Pack 2** *Hit Pack* 9.95 | A better bargain compilation with Eagles nest (WW2 Gauntlet), Batty (great breakout game), ACE (Under-rated flight sim.), Shockway rider (Gory but fun), International Karate and Lightforce. | NE | 41 |
| 12 | Down | **Paperboy** *Elite* 8.95 | Hugely popular game which shows that quality is more important than meeting deadlines. No sound, but plenty of thrills and spills. Avoid the road – it's dangerous. | 11 | 38 |
| 13 | Down | **Cricket International** *Addictive* 1.99 | This game misses all the important things about cricket – the drug scandals, the biased umpires and the ball-by-ball on radio 4. Good stuff for stalwart fans. | 10 | 38 |
| 14 | Down | **International Karate** *Endurance* 2.99 | Also available on Hit Pack, it's unusual to find one game in the chart twice. Better than most, but when you've a shelf groaning under the weight of fighting games who needs another? | 12 | 34 |
| 15 | Up | **Barbarian** *Palace* 9.99 | Slack and Hay, fighting game where decapitation is the aim of the game. Heads you lose. Slick coding and packaging made this a real hit. | RE | 30 |
| 16 | New entry | **Rigel's Revenge** *Mastertronic* 2.99 | Two part space cop game. Play a pixellated double agent in this great game on Mastertronic's Bulldog label. | NE | 29 |
| 17 | Down | **Super Robin Hood** *Code Masters* 1.99 | Rescue maid Marion in this almost excellent budget escapade. Fun to play but no cigar. Ladders and platforms format. | 8 | 28 |
| 18 | New entry | **Alpine Games** *Atlantis* 2.99 | Winter Olympics simulation. Five events: Skiing, ski jump, biathlon (a very boring event to watch), speed skating and bobsled. Win gold medals. Who needs to go to Canada? | NE | 27 |
| 19 | New entry | **Road Runner** *US Gold* 9.95 | Beep Beep! Somewhere inside the tiny box in the middle of the screen is a game. OK graphics, naff plot. Not one of the greatest machines. | NE | 27 |
| 20 | Up | **Ollie and Lisa** *Firebird* 1.99 | What's this doing in the chart? It's been out ages. Still, it's a good game and really deserves a chart place, even if it is right at the bottom. | RE | 26 |

Non-mover · Up · Down · New entry

# Applications advice



**David Foster, Agony Uncle to the Amstrad community solves more problems with serious software.**

YOUR questions keep flowing in (non-stop, please!) and once again, from the latest batch it appears that printers are a constant source of trouble. Perhaps not so much the printers as the fact that most people are having trouble getting them to do what they want from within a particular program.

The main reason is the relative lack of standardisation between the control codes that the different makes and models of printers require. This is frequently made all the more incomprehensible by the fact that a lot of printer manuals are either written in Japlish or the examples given relate to a different version of Basic.

Hopefully I will devote some time to trying to sort out some of these problems in a short separate article in a future issue, but for now I'll look at a few problems related to specific programs and printers.

## Mini Office II

G.M. Yearling has a problem with Mini Office II when he tries to use the f1 key to send printer control codes to the word processor. The instructions say to "follow the symbol by the codes you wish to send, separated by commas and terminated by any non-numeric key".

He is trying to send the codes to turn on NLQ print mode on his DMP3000 and the codes required according to the printer manual are:

CHR$(27)+"x"+CHR$(1)

He is attempting to type this in after typing 'f1' and then finishing off by typing a letter to terminate the codes. In fact all that is required is to press the f1 key on the numeric pad which will produce a ^ in the document and then type in the various numbers (only numbers may be used) required, separated by a comma and finally a letter to terminate the codes.

In the case of NLQ, the sequence is press f1 on the numeric pad, then type in:

27,120,1X

The 120 is the Ascii value of x, and the X at the end is the non-numeric character that Mini Office requires to finish the code. This would normally be the first letter of the text that you wanted to print in NLQ. On screen it will appear something like:

^27,120,1This is the start of NLQ

One problem with this method of entering printer codes is that even though they are not printed, each character used in the code definition is printed as a space, with the result that in the above example the printed text is spaced across the page by the nine characters of the code.

This can be avoided in most cases by making sure that when you want to use a code sequence you use it at the end of the previous line of text, or on a separate line. The spaces will not then be obvious.

M.D. McQuade is also having trouble with Mini Office II when used with his DMP2000 printer. In his case, when using the word processor he cannot get it to print the correct number of lines on a page.

With a setting of 66 for page length for his continuous stationery, he finds that if he specifies more than one copy to be printed the second copy comes out one line out of position.

When the first copy is completed, it appears that Mini Office II provides one too many line feeds and makes the page length up to 67 lines.

So far I haven't found a solution to the problem, but I shall take it up with Database Software and hope that we can find a solution.

At the moment, the best I can suggest is not to try to print multiple copies with continuous stationery. With single sheet stationery the problem is not apparent as you set each sheet's position individually.

## Redefining printer characters



John Harper is an astrologer, uses the Astrocalc program and is having trouble with redefining a number of characters on his Epson FX80 printer. He is using an 8 bit printer port and finds that while nearly all of the characters are correctly redefined, two are not printed correctly.

He assures me that the authors of Astrocalc say their program isn't causing the problem, KDS, manufacturer of the printer port, says it isn't a problem with the port and Epson says that as the other characters redefine correctly, it cannot be the printer.

Unfortunately I don't have one of the 8 bit printer ports, so I cannot test this out on a CPC, but Mr Harper sent a listing of the Basic program that redefines the characters.

To test out the definitions, I loaded the data into a computer with an 8 bit port and everything worked correctly, but on looking more closely at his program I find that at the start it tries to redefine and use certain of the characters without first copying the character set into ram, so that it may be redefined. The effect of this is that

because the codes cannot be used by the printer, they are sent to the printer as characters instead and later in the program, when the characters are used, they print incorrectly, as they haven't been defined. I think that he will find that when he removes the offending lines the problems will disappear. Remember that if you want to redefine characters on a printer there are three things that must be done:

- Send codes to copy character set into ram.
- Send codes required to define each character.
- Send codes to activate the ram character set.

## Sorting with Masterfile 3

I have had a number of enquiries about using Masterfile 3, some of which I have already answered in previous columns. George Young from Glasgow uses Masterfile 3 to keep a record of competition of results for about 150 people who might have taken part in between ten and a dozen events out of a choice of 25 events.

His problem is that while he can do this with Masterfile, he finds that having to sort the results for each event is a somewhat laborious process due to the fact that even if only a couple of people took part in a given event, when Masterfile sorts records it sorts every one, even if it is currently unselected.

It is true that this is perhaps the weakest feature of Masterfile, but with a little bit of thought and ingenuity it can be made to carry out the task quite well. Having said that, it is only fair to say that a database that maintains indexes of specified fields would probably be more suitable.

Anyway, Mr Young has Masterfile, so how can he make the best use of it in order to reduce the sorting time as much as possible? The solution is to look at the data from a different angle. I would make use of the relational aspect of the program and keep all the competitors names in parent records. By doing that, I need to enter the name of each competitor only once, no matter how many events he is in.

In this case I would define fields for the database as shown in Figure 1. Having done so you should enter up the names of all the competitors, only filling in the Parent and Name fields. The next thing is to design a report format to display the results. This should only contain the Result and Name fields, in my case, both on the same line and spaced across the screen. The Record depth in the Geometry, I set to 1.

Data can now be entered. The first field offered for input is the Result field and either the position, or the distance achieved, should be entered according to the type of event.

The trick here is to make sure that you precede all distances with a negative sign. The reason for this will be apparent in a minute. Next is the Event field, and this may either be entered as a short abbreviation each time, or you can go into Basic and use the KEY command to define a key to produce the required text. For example:-

```
KEY 128,"High Jump"
```

If Masterfile is then restarted with CALL RESUM, every time the Event field appears it is only necessary to press the f0 key.

The third field requiring input is the Child field and the abbreviation that you chose for that competitor when you entered the parent records should be entered.

Once all the data for the various events has been entered, it is time to sort the data file into order and this should be done on the Place field and Ascending order and Numeric sort selected.

Because of the way that Masterfile sorts data, the negative figures will be at the top of the list, with the "most negative" numbers first. Positive numbers will then follow in ascending order.

Finally, you can display the results for an event by selecting the Search option and Unselecting all records before selecting on the Event field using a String Scan search and the name of the event. If you now go to display mode, you will find the competitors for the specified event listed in either place order or distance jumped/thrown order, depending on the event.

The only snag with this is that if you selected no decimal points for the Result field in the format, then you will not see the number of centimetres jumped. On the other hand, if you selected decimal points, then the placings will be shown with two trailing zeros.

The solution is to duplicate the formats and have one with decimal places, the other without, and then use the appropriate format for the type of event. If the – sign in front of the distances offends, it can be obliterated by specifying a heading field containing only a single space as the heading and positioning it over the minus sign in the record.

Many other things can be done to pretty it all up, such as altering the heading text for a format before printing it, so that it gives full details of the event, but it does demonstrate how with a little bit of thought it is possible to get round most problems. Using the system described, it means that the data only needs to be sorted once for all the events, which should solve Mr Young's problem.

Kevin Morgan is having trouble with the Laser Basic Compiler. While he can save data to disc using the PRINT#9 command, he can't manage to read it back in with INPUT#9. Instead of reading the data from the data file, it waits for it to be typed in at the keyboard. I don't know this program and understand that it is no longer available, so if anyone knows a solution to Kevin's problem, please let me know.

| Data Ref. | Field Name | Type | Notes |
|---|---|---|---|
| R | Result | Numeric | To contain details of place or distance. |
| E | Event | Non-numeric | To describe the event. |
| ^ | child | Non-numeric | Child link to person's name. Initials of person used as link. |
| > | parent | Non-numeric | Parent link. Contains the initials that will link with the name in the record. |
| N | Name | Non-numeric | The full name of the competitor. |

*Figure 1: Fields required for Masterfile 3 database to record competition results*

## Educational troubles

Ruth Newbury writes in about all sorts of problems she is having. She purchased her CPC6128 in the hope that she could use it to help with the administration in her job as a teacher. She is having great trouble making sense of the manual, which she finds full of jargon and has come to the conclusion that she will have to buy programs to do the jobs she wants, rather than write her own.

Unfortunately, there is little that can be done about the use of jargon in computer manuals, particularly with regard to learning Basic, and it requires a considerable amount of time to be sufficiently competent at programming to be able to write any programs suitable for serious use. You have to both learn the language and the principles behind the design of the program you want to write.

She has purchased Mini Office II and has managed to make some sense of that, but is unable to get it to do what she really wants.

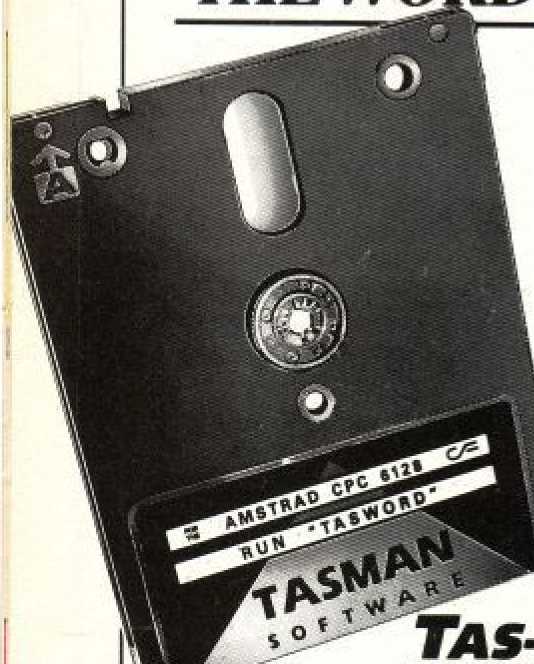
Mini Office II is undoubtedly good value for money, but it does have severe restrictions for use in many cases and the only real solution is to look at other programs that concentrate on one aspect only and provide more flexible and powerful facilities.

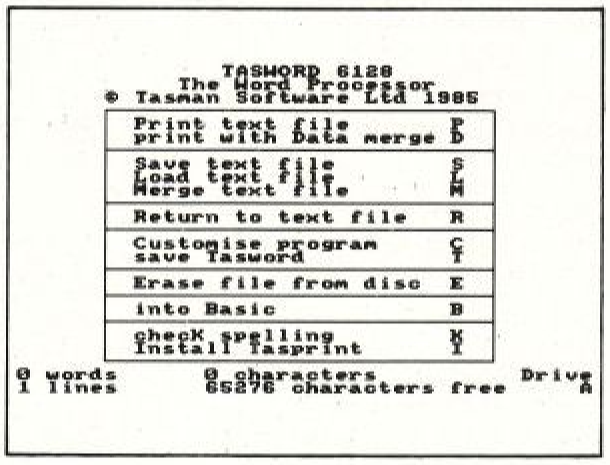
I would suggest that she ought to consider buying a separate database, a word processing program and a simple accounting program. My recommendations would be Masterfile 3, Protext and one of the simple accounts programs, such as Money Manager. Having got them, I would suggest that she ought to concentrate on one of them and get to know it thoroughly before moving on to the next.

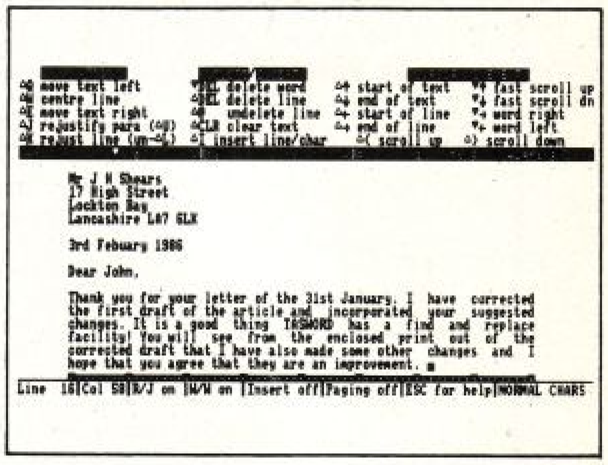
If any teacher readers use their CPC to keep records of pupils, grades and results, departmental accounts or create their own worksheets for use by pupils, please get in touch with me and let me have the details, so I can pass on any advice.

# TASWORD 6128

## THE WORD PROCESSOR FOR THE AMSTRAD CPC 6128




## TAS-DIARY

THE ELECTRONIC DIARY

**TAS-DIARY for the Amstrad CPC 6128, 664 and 464 with disc drive disc £12.90**

*Keep an electronic day-to-day diary on disc! TAS-DIARY features a clock, calendar and a separate screen display for every day of the year. Each year stored on disc includes a memo pad and several note pages. TAS-DIARY is an invaluable aid to keeping records, reminders, and any other data which is related to that most valuable commodity of ours – time!*

## TASWORD 6128

THE WORD PROCESSOR

**TASWORD 6128 for the Amstrad CPC 6128 disc £24.95**

*Brilliant value for money.*
AMSTRAD ACTION December 1985.

*A powerful and easy to use word processor and a superb data merge program.*
AMTIX December 1985.

*TASWORD 6128 is the word processor especially developed to utilise the extra memory in the CPC 6128.*
*The program uses ALL the additional 64K of memory in the CPC 6128 as text space. This means that text files can be around ten thousand words long.*
*TASWORD 6128 includes a built-in data merge program. Mail merge, in which a letter is printed any number of times, each individually addressed to a different person, is just one of the applications of this powerful facility.*
*The notepads are a unique feature of TASWORD 6128. Four separate notepads are available. Typing reminders and storing letter headings are just two possible applications for the notepads.*
*Up to one thousand characters can be stored in ten user definable keys allowing commonly used words, sentences, or even paragraphs to be typed with a single keypress.*
*TASWORD 6128 has comprehensive customisation features. These allow many of the program facilities to be changed to personal requirements. A customised program can be saved and includes the notepads and user definable keys.*
*TASWORD 6128 is fully compatible with TAS-SPELL and TASPRINT. It will also read in data from Masterfile 6128. It can even be used to enter and edit your own Basic programs.*
*With all standard and many extra word processing facilities TASWORD 6128 is the most powerful of the TASWORDS, for the Amstrad CPC computers.*

## TASWORD 464-D

THE WORD PROCESSOR – WITH MAIL MERGE!

**TASWORD 464-D disc £24.95**

*This is the new TASWORD especially developed to utilise the capabilities of the CPC 464 and 664 disc drives. The additional facilities include a larger text file size and automatic on-screen disc directories during save and load operations. A major new feature is the mail merge facility. This gives multiple prints of your standard letters, forms, etc., with each copy containing, for example, a name and address automatically taken from a disc file containing the data. This data can be entered using TASWORD 464-D, or created using the Masterfile Program Extension package. A powerful and useful conditional printing facility is included – parts of a document can be printed according to user-specified criteria. TASWORD 464-D will only run on, and is only supplied on, disc.*

## TAS-SPELL

THE SPELLING CHECKER

**TAS-SPELL disc £16.50 for the Amstrad CPC 464 and 664 running TASWORD 464-D and for the CPC 6128 running TASWORD 6128**

*Spelling mistakes and typing errors spoil any document whether it is a private letter or your latest novel. With TAS-SPELL you are free to be creative in the confident knowledge that your spelling won't let you down.*
*TAS-SPELL checks the spelling of TASWORD 464-D and TASWORD 6128 text files. TAS-SPELL has a dictionary of well over twenty thousand words which it compares with the words in your text. If a word is not recognised then the relevant part of your text is displayed with the suspect word highlighted. You can correct the word, ignore it (it might be a name), or even add it to the TAS-SPELL dictionary.*
*Please note that TAS-SPELL will only work with TASWORD 464-D and TASWORD 6128.*

## TASWORD UPGRADES

*TASWORD 464 and Amsword owners: send your original cassette or disc (not the packaging) as proof of purchase and £13.90. Your original will be returned together with TASWORD 464-D or TASWORD 6128 on disc.*

## TASPRINT 464

THE STYLE WRITER

**TASPRINT 464 cassette £9.90 disc £12.90**

*A must for dot-matrix print owners! Print your program output and listings in a choice of five impressive print styles. TASPRINT 464 utilises the graphics capabilities of dot-matrix printers to form, with a double pass of the printhead, output in a range of five fonts varying from the futuristic DATA-RUN to the hand-writing style of PALACE SCRIPT. TASPRINT 464 drives the dot-matrix printers listed below and can be used to print AMSWORD/ TASWORD 464 text files. TASPRINT 464 gives your output originality and style. Completely compatible with the 664 and 6128.*

## TASWORD 464

THE WORD PROCESSOR

**TASWORD 464 cassette £19.95**

*"There is no better justification for buying a 464 than this program"*
POPULAR COMPUTING WEEKLY, NOVEMBER 1984

*Your 464 becomes a professional standard word processor with TASWORD 464. Supplied complete with a comprehensive manual and a cassette which contains both the program and TASWORD 464 TUTOR. This teaches you word processing using TASWORD 464. Whether you have serious applications or simply want to learn about word processing, TASWORD 464 and the TUTOR make it easy and enjoyable.*

## TASCOPY 464

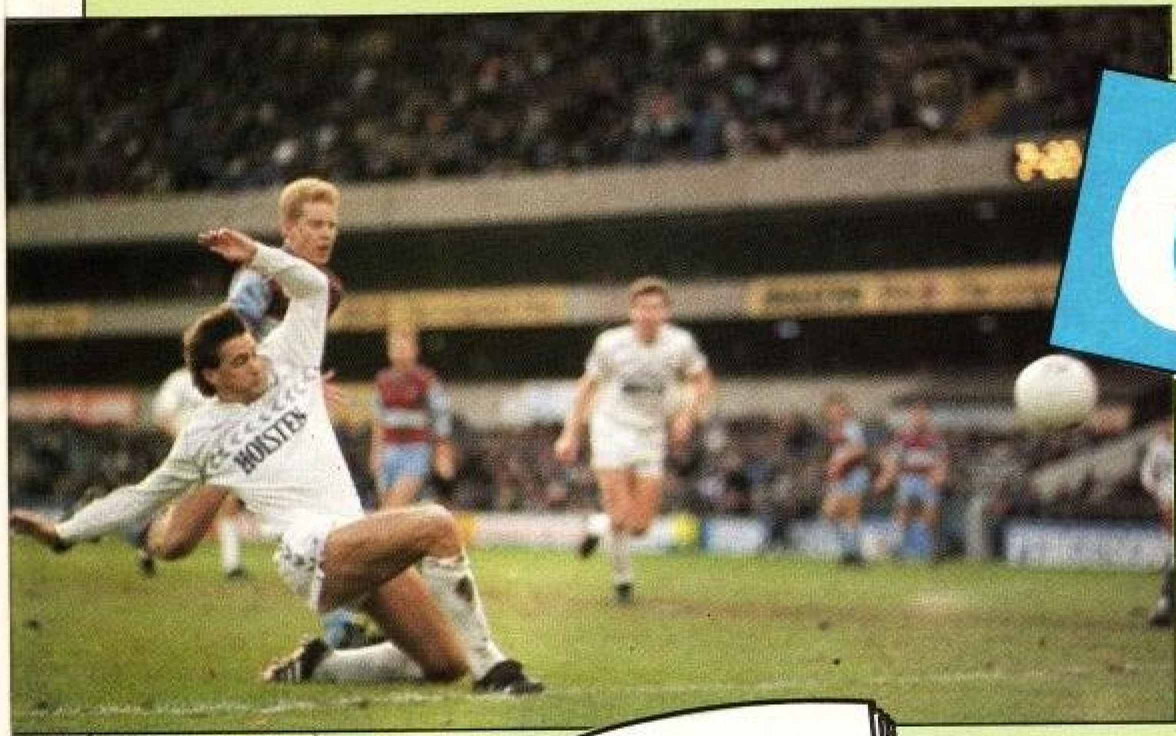
THE SCREEN COPIER

**TASCOPY 464 cassette £9.90 disc £12.90**

*A suite of fast machine code screen copy software for the CPC 464, 664 and 6128. Print high-resolution screen copies in black and white and also large 'shaded' copies with different dot densities for the various screen colours. TASCOPY 464 also produces 'poster size' screen copies printed onto two or four sheets which can be cut and joined to make the poster.*

*TASPRINT 464 and TASCOPY 464 drive the following dot-matrix printers:*

| | | | |
|---|---|---|---|
| AMSTRAD DMP1 | MANNESMANN | STAR DMP501/5/515 | SHINWA CP-80 |
| EPSON FX-80 | TALLY MT-80 | BROTHER HR5 | COSMOS-80 |
| EPSON RX-80 | BROTHER M1009 | DATAC PANTHER | AMSTRAD DMP2000 |
| EPSON MX-80 TYPE III | NEC PC-8023B-N | DATAC PANTHER II | |




# GOAL!

## Win a trip to the European Championship finals in Munich

RULE BOOK

1. The winner will be the first correct entry opened on February 29.
2. The runners up will be the next five correct entries drawn.
3. You may photo-copy the form but only one entry is allowed per reader.
4. Anyone found entering more than once will have ALL entries disallowed.
5. The editor's decision is final.




**Addictive Games are offering the chance to win the trip of a lifetime to see the European championship finals in Munich. You and a friend could be travelling out there if you win the final of their Football Manager II competition.**

There are two rounds. The semis are on this page. You will find two pictures in the coupon below. There are 10 minor differences. Mark all 10 and you could be on your way to the final.

To win this you will have to play Football Manager II against readers from other magazines. It may well be the most important computer game you ever play because only the player who does best in this league will qualify for a place in the Munich stadium.

There are prizes all the way to this special trip. The winner not only gets a chance to take part in the prize game, he or she will also take away a copy of the Goal Video which shows the 1966 World Cup. The runners-up, who no doubt will be as sick as a parrot, can console themselves with a copy of the vid.

Name____________________

Address____________________

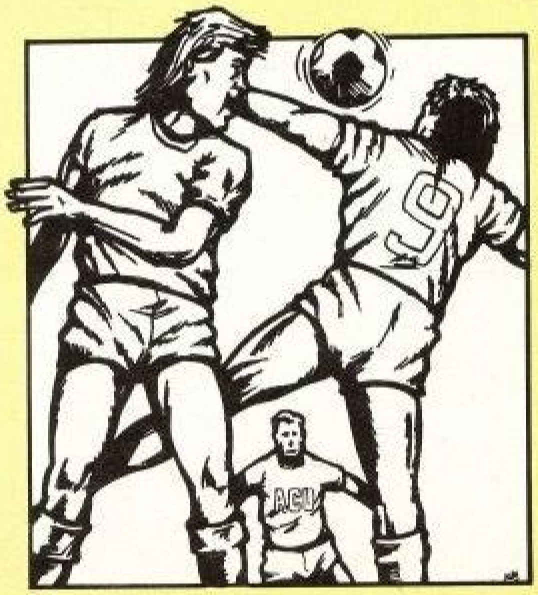
____________________

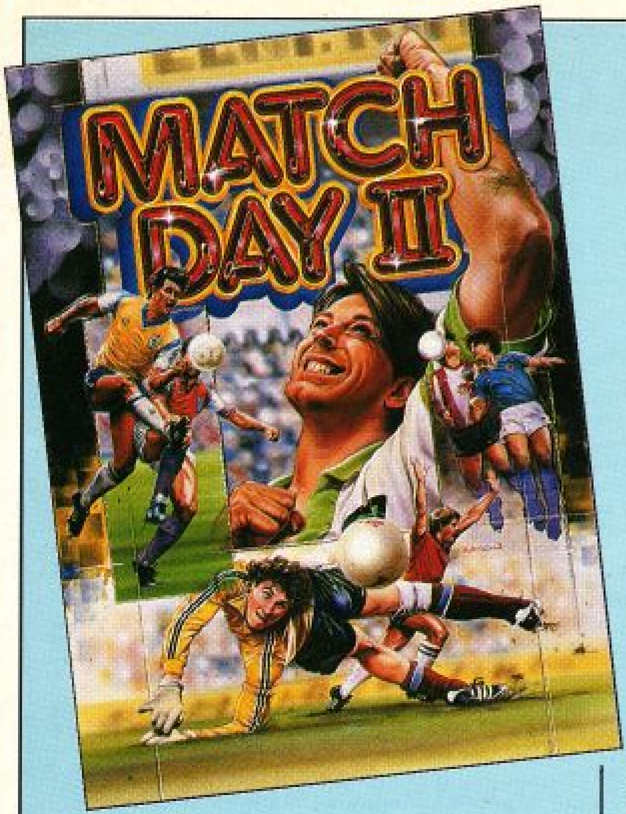
____________________

Telephone____________________

Send to: ACU Addictive Competition, 169 King's Road, Brentwood, Essex CM14 4EF.






# Soccer Sequel

**Buy this game and you'll be over the moon. Simon Rockman finds that Ocean's latest game is so good that Robert Maxwell has put in an offer for it**

JON RITMAN explains the quality of the workmanship which has produced Matchday II by saying. "It's the advantage of having written Matchday. And working 120 hour weeks, getting up at nine in the morning and working until 3 am". Jon works hard, and it shows: Each of his games has taken a theme and stretched it, polishing and refining. Batman, for example, was a wonderful game. Just as I was getting tired of 3D isometric games the caped crusader flew in to revive the format. Batman was clever, addictive and funny. When he visited the *ACU* office Jon said that there had been plans to put a Robin character in the game and that Bernie Drummond, the man behind all the graphics, had gone as far as to design a Robin sprite.

The idea was that Robin would appear in a room at random, one in 2,000 or more times, so some people would never see him and others would insist they had. You can imagine a huge argument over the existence of Robin. Unfortunately, memory constraints meant that this had to be dropped.

Batman lost its mantle of best-ever 3D isometric game to Jon and Bernie's subsequent project, Head Over Heels. This took the idea a few steps further – you could control two characters which explored the same maze. Each had special properties, so they had to meet to solve some puzzles and were only able to visit other puzzles when they were separated.

If you haven't played Head over Heels then you should look it out – it's one of the all time classics.

And so to Matchday II. Football games have always been popular, and often they have sold on the strength of the game on grass – not the game on the screen. So as a package which has the appeal of both, Matchday II is bound to be a real winner.

Jon's hallmark has become the detailed menu entry system used on games like Batman. The main menu offers more than just a one or two player option – but Matchday II also offers a twin player game, where you can join forces with a friend and take on the computer.

When you pass the ball the computer tries to sort out who has kicked it and pass it to the other player. Using this caused more arguments in the *Amstrad User* office than any other feature of the game, apart perhaps from the result – Ocean Blues 4 Amstrad Users 0.

Matchday will only support one joystick because the CPC does funny things if you try to use two. Meaning that the player using the keyboard could not run diagonally. This problem is solved by defining the 9 to be both up and right, the 1 to be down and left, and so on. There are some problems involved with defining keys for two players, but the game instructions explain how to overcome these.

You can handicap a friendly match by giving one team any number of goals before you start each half.

Ocean Blues 4 Amstrad Users 128 but it's only really useful when two players are battling against each other.

You can pause the game by pressing Escape, which gives you a chance to recover from the strained fingers you get when you press the joystick too hard. Jon says that he is surprised by the amount of physical effort most people put into the game. It certainly isn't necessary – you won't get the man running any faster but you might break the joystick.

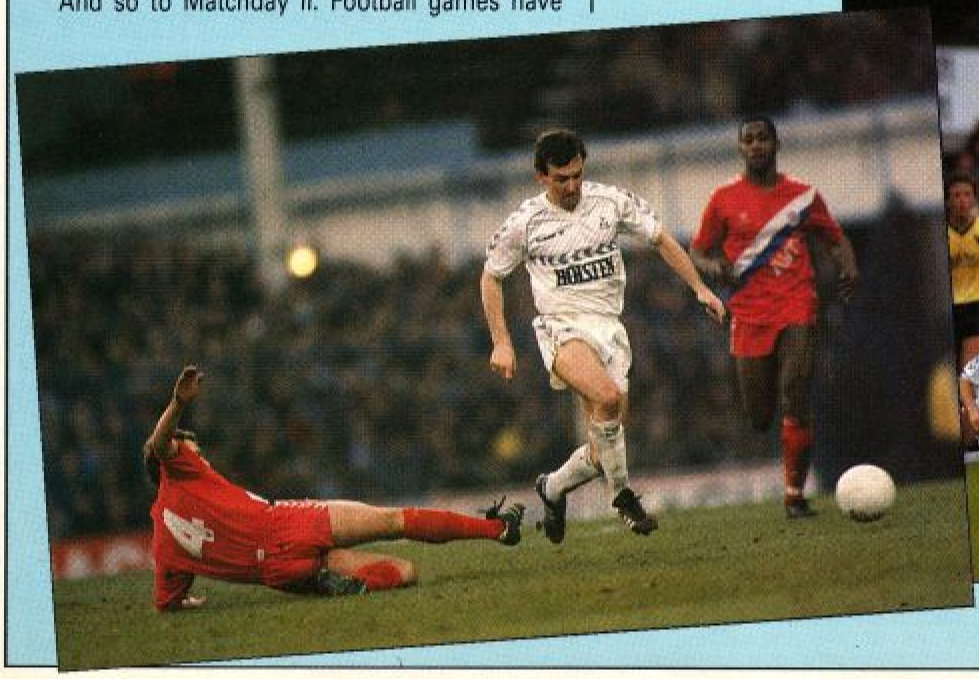
While the game is paused you can change tactics. Because you only control one player at a time the computer looks after the rest of your team for you – the tactics menu decides where the computer should put them, either in attack or defence. A bit of clever programming ensures that they don't all run after the ball at once.

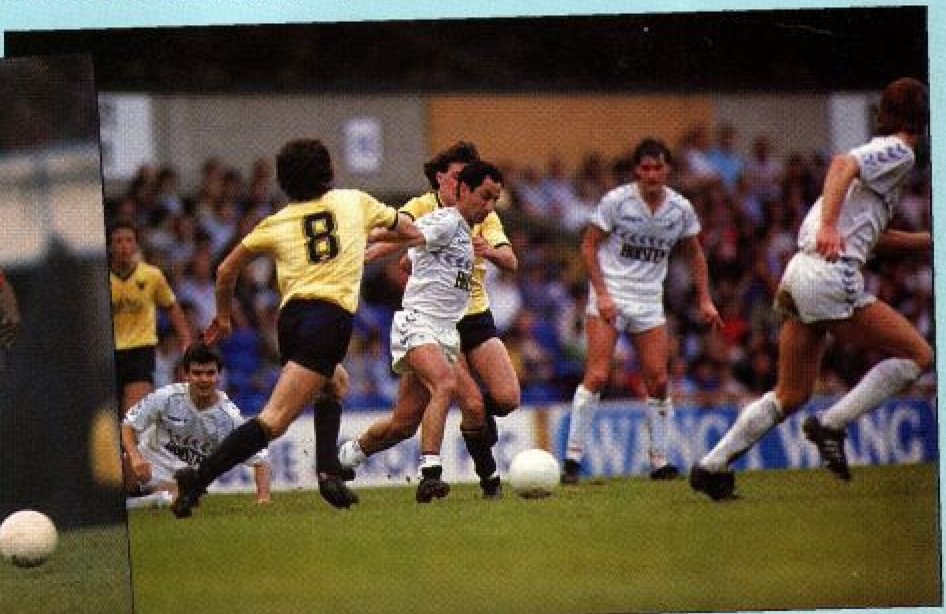
## On the way to Wembley

In addition to standard friendly games Matchday II will run full league or cup competitions. These are adjusted so that the better you do in the league or cup, the tougher the computer's opposition becomes. Once you have started a cup or league you can leave, play a friendly and then return.

Tables let you follow the progress of other teams – friends playing the parts of other teams, or the computer. You can choose to watch computer v computer matches or to just let the Amstrad tell you the result. Up to seven friends can take part, making for a very hectic day's play.

The large number of matches take a good deal of time, so there is a very clever save game option. A code number contains all the information about the state of the cup or league – you just type this in and start from where you left off. It's a long number – 30 digits for a league game –












but it is much easier than messing around with saves to tape or disc. This system means that team names cannot be saved, a pain if you want to mimic the real league but all in all a better compromise.

## The big match

For all the pretty menus the thing which makes Matchday II the best football game ever is the way it plays. Jon Ritman has taken a good look at what the important factors are in the sport. The first thing you notice is the kickometer. This is in the middle of the screen, with a mini-kickometer over the player's head, essential for identifying which man you are controlling.

There are four strengths of kick, three forward and one backwards (particularly useful for tackles). You can select a kick by holding down fire when the type you want is shown, then run at the player who has possession – and you should hit the ball. If it is a back kick the ball will bounce out and leave you between it and the other player. Well that's the theory, it takes a good deal of practice to get it right.

The other kicks are easier, hard, medium or soft. If you are running when you kick the ball it soars up into the air, otherwise it rolls along the ground. When the ball is in the air you must keep an eye on the shadow. The 2D screen can be deceptive enough to make you run away from a ball in flight.

To make things easier for beginners, any level of kick can be selected, you can turn off back kicks and just use all the forward options. A similar selection can be made for your goalie. Normally you would gain control of the keeper when the ball approaches, but you can keep him under computer control.

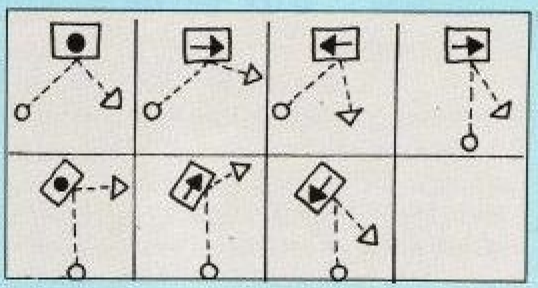


*Figure 1: The diamond deflection system. The arrows inside the boxes indicate the way the player is running.*

This will try to ensure the man stays between the ball and the net. For most purposes the computer-controlled keeper is better than the human-controlled version, but he will be beaten by a cross.

When the ball has been taken out of play, for a kick-off, throw in or corner, your man runs to the side and picks it up: The joystick can be used to control where it is then thrown or kicked. Each of the nine joystick positions represents an area of the displayed field, which allows you to throw or kick the ball to another player. If the ball lands below the players knees he will gain possession.

One of the things no football game had done before is calculate true headers and deflections. If the ball is above waist height and near the player he will jump when you press fire.

What happens then depends on where the ball hits the player. It may be deflected by the body, headed up or volleyed from the foot. A run, jump and kick not only looks spectacular, it propels the ball the greatest distance. Jon has incorporated what he calls the diamond deflection system: This ensures that the ball reacts in a true to life manner – Figure I shows how this works.

Even on the computer pitch things aren't always friendly and the game will allow barging. You can push another player around with brute force, but it's not wise to do this on the hard level because the computer will push back, and it is likely to be better than you are.

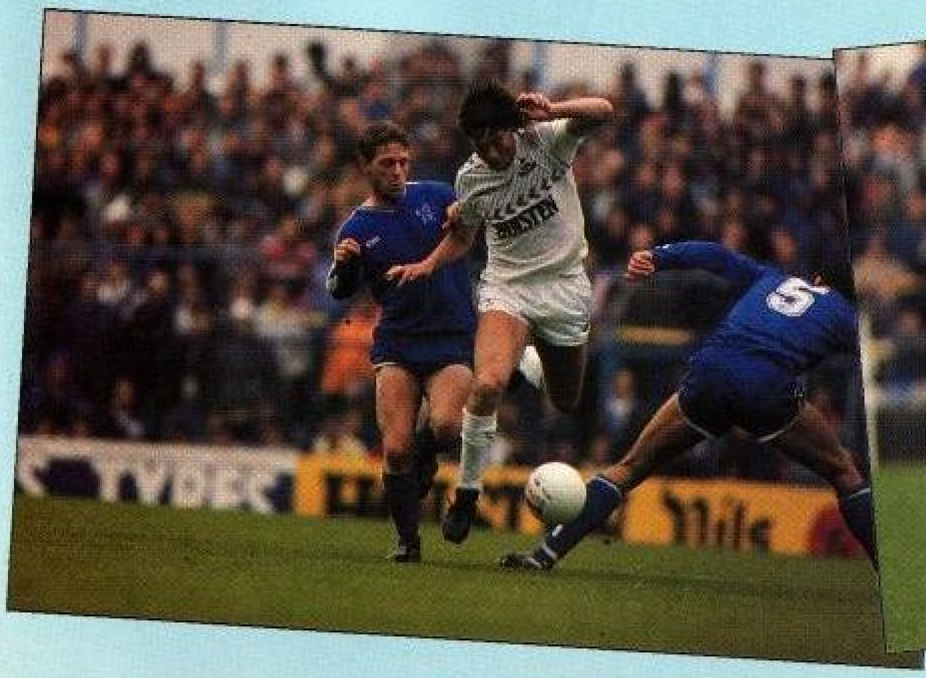
## Full time

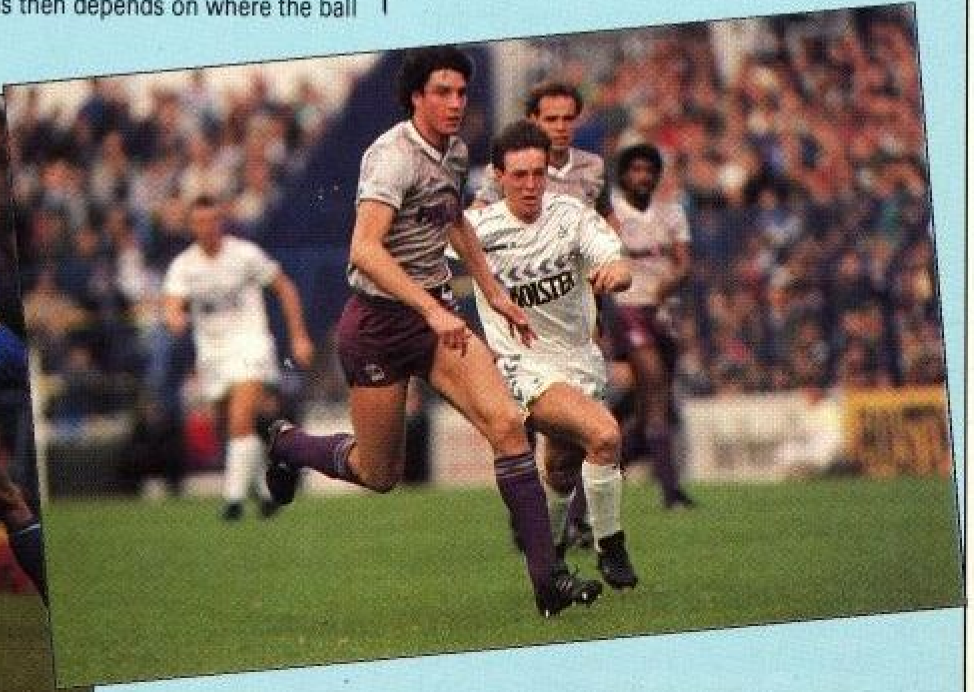
I have to come clean, I'm not much of a football fan. I thought Queen of the South was reference to Edna Everage, but this is a program which even a person who has never been to a match will enjoy.

I spent hours trying to master ball control, back kicks, dribbles and still went back for more games. This isn't something you can finish, the more you play the better you get. And the better you get the more you want to play.

Matchday II is one of the best, most carefully planned and programmed games I've played. It's not the first and it won't be the last football game, but it is the finest.

Ocean 1. Other football games United 0.








# Caught in a trap

**Jeff Walker shows how to prevent crashing into errors by picking up banana skins**

**IT can be great fun programming your computer, especially when you can impress your parents or friends by making it do something ultra-intelligent. You know, the sort of thing that makes them even more convinced that all computers should be knocked on the head before they take over the human race – as if they haven't already ... already ... already ... thump. Hmmm. Must get that seen to.**

One of the more impressive, and more intelligent, features of Locomotive Basic is its excellent error-trapping facility.

ON ERROR GOTO, to give "it" a name, is followed by a line number, and it does exactly what it says it does: If an error of any kind occurs while the program is running, then instead of upsetting the user by crashing, it whizzes off to line so-and-so to carry out whatever instructions it finds there.

So let's get straight down to some programming with a simple but very useful example.

One of the most boring questions CPC 464s ask you when they are running utility type programs is "Tape/Disc?" every time you want to load or save something. Obviously, if you've no disc drive fitted then you'll want to save to tape, but those of us lucky enough to have a disc drive will naturally want to use it.

One way around this would be to ask the question just once, right at the beginning of the program, but even this is unnecessary, as Figure I shows.

Line 110 is the one that tells the program to wander off and check whether a disc drive is fitted. The first line it hits in the subroutine tells it to GOTO line 530 if an error occurs.

## Back to normal

If you haven't got a disc drive, an error will occur in the next line (510) with the |DISC command. The statement and line following |DISC are ignored because control passes immediately, due to the ON ERROR command in 500, to line 530, where the variable disc is set to FALSE. The subroutine then returns as normal.

On the other hand, if you have a 664, 6128, or 464 with a drive fitted, no error occurs so line 510 is carried out in full. The ON ERROR GOTO 0 switches error trapping off as we don't need it any more, line 520 sets disc to TRUE and then skips past line 530 to return from the subroutine again, as normal.

All this is invisible to the user, so for the purpose of this example I've used disc to cause different messages to appear on the screen.

## Grind to halt

Note that error trapping should only be switched off if you are sure an error has not occurred. If an error has occurred before you issue an ON ERROR GOTO 0, then the program will stop with an error message, just as if you'd never issued the first ON ERROR GOTO 520. In Figure I, error trapping is switched off in a part of the program that can only be executed if an error HAS NOT occurred.

OK. Before we do any more programming I want to introduce you to three keywords associated with ON ERROR GOTO. Actually, they aren't really keywords in the command/function sense, they are variables whose values are set up and updated automatically by your CPC: DERR, ERR and ERL.

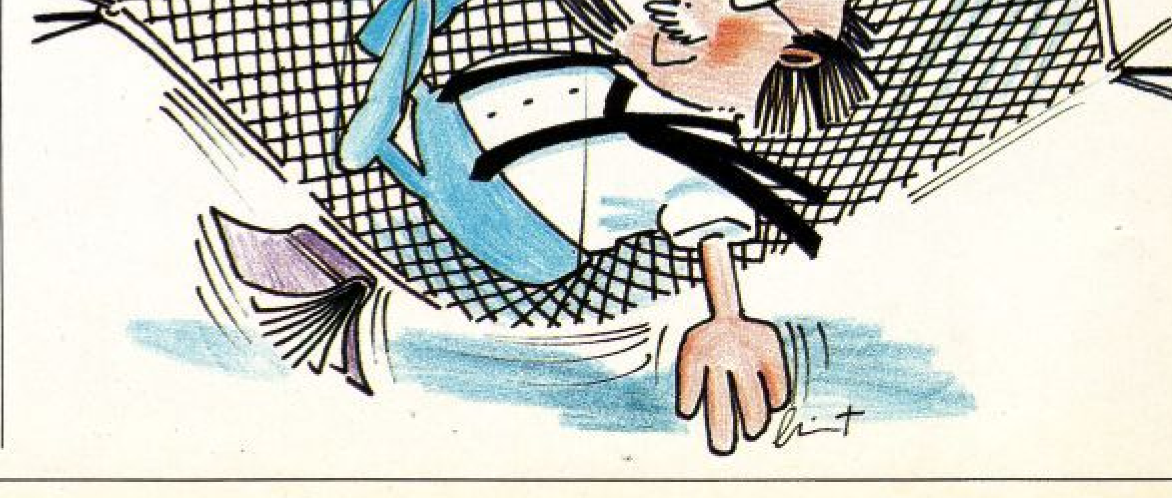
ERR is the number of the error that has occurred. Normally this will be zero, but as soon as an error happens the computer pokes a value into memory that represents the nature of the error. Similarly, DERR is the number of an Amsdos error (that is, a disc read/write error). It is only available to users with a 664 or 6128.

You can investigate these numbers when an error happens simply by typing PRINT ERR or PRINT DERR. A full list of error numbers, and what they mean, is in your manual.

(Once an error number has been poked into memory by the operating system, it remains there unchanged until overwritten by another. This can cause problems sometimes, but there is a way around it).

ERL is the line number on which the error was spotted. Again, PRINT ERL will inform you of the last line number in which an error happened.

Together with ON ERROR GOTO, these three



"variables" can be put to good use. The most obvious use is to trap and report possible typing errors when typing-in or developing programs.

Sometimes programs set up funny colours and awkward windows so that when it crashes the error message is unreadable. In Figure II is an error trapping routine which will rid you of this problem.

The routine prints out numbers, the meaning of which you can look up in your manual; but you could just as easily turn it into a routine to print out messages according to the values of ERR:

IF ERR=1 THEN PRINT"Unexpected NEXT" IF ERR=2 THEN PRINT"Syntax error" : : IF ERR=32 THEN PRINT"Broken in"

That's the obvious way, but a more practical way is to read in an array of 32 error messages, say msg$(1) to msg$(32), from data statements, and then a simple PRINT msg$(ERR) would save all those IFs and THENs.

What? You didn't know you could use ERR as an array subscript? It doesn't say anything about it in the manual? Tut tut. Stay behind after school and write out "I must experiment with Basic" 1000 times.

## Back to zero

And, of course, disc users could extend this idea further to incorporate all the DERR values.

If you have a disc drive you'll need some way of resetting ERR and DERR to zero before running the program each time, otherwise an old error number could cause the error trap to spit out an erroneous error number or message.

For instance, say on first running the program you've just typed-in the error trap spits out a DERR number. You immediately spot the error, a bad filename, and correct it. On the next run the error trap spits out an ERR number, plus the DERR number of the mistake you've just corrected.

As I said earlier, even though you've corrected the mistake that caused the first DERR, its number is still there in memory, and will remain there until overwritten by a subsequent disc error. And it's the same for ERR.

You can't reset ERR or DERR by executing a line like ERR=0, but you can POKE zeros into the memory locations set aside by the operating system to hold the error numbers. Sneaky, huh?

The relevant addresses are shown in the first four lines of figure II. Play around with them. I believe the 664 addresses are the same as the 6128 ones. I'm sure you'll tell me if they're not.

Of course, the built-in error numbers mostly cater for errors related to the Basic interpreter and the disc operating system. But you can also use ON ERROR GOTO to trap user-errors (bad input for example) by means of customised error numbers.

These are set up by the ERROR keyword which is, again, a built-in variable, but this time one you can alter. You don't use the equals sign with ERROR though. The syntax is:

IF <something> THEN ERROR <number>

The numbers up to and including 32 are reserved by the system, but everything else, up to and including 255, is yours for the taking.

Type ERROR 21 and press Enter – that's one of the systems. Now type ERROR 33 – it's "unknown" because we need to introduce it to

```
100 TRUE=(1=1): FALSE=(NOT TRUE)
110 GOSUB 500 'Disc drive fitted?
120 '
130 IF disc THEN GOSUB 200
140 IF NOT disc THEN GOSUB 300
150 '
160 END
199 '
200 PRINT"Disc drive fitted."
210 RETURN
299 '
300 PRINT"No disc drive fitted."
310 RETURN
498 '
499 'Detect if disc is fitted
500 ON ERROR GOTO 530
510 |DISC: ON ERROR GOTO 0
520 disc=TRUE: GOTO 540
530 disc=FALSE
540 RETURN
```

*Figure I: Using ON ERROR GOTO to detect if a disc drive is fitted.*

```
1 POKE &ADAA,0 'reset ERR (464)
2 POKE &ADAB,0 'reset DERR (464)
3 POKE &AD90,0 'reset ERR (6128)
4 POKE &AD91,0 'reset DERR (6128)
5 ON ERROR GOTO 10000
10 '
20 'the program...
30 '
9999 'Error trap
10000 MODE 1          'default mode
10010 CALL &BC02      'default cols
10020 CALL &BB4E      'paper 0, pen 1
10030 GOSUB 11000 'error number
10040 GOSUB 12000 'disc error?
10050 GOSUB 13000 'line number
10060 STOP            'halt program
10999 '
11000 PRINT"Error number";ERR
11010 RETURN
11999 '
12000 IF DERR=0 THEN 12030
12010 PRINT"Disc error number";
12020 PRINT DERR
12030 RETURN
12999 '
13000 PRINT"Detected in line";
13010 PRINT ERL:RETURN
```

*Figure II: Trapping typing errors*

```
10 GOSUB 1020 'program setup
20 ON ERROR GOTO 1470
30 '
40 GOSUB 1190 'get filename
50 GOSUB 1230 'check it
60 '
70 PRINT "Filename is ";name$
80 END
90 '
1000 '
1010 'Program setup
1020 nums$="0123456789"
1030 lets$="ABCDEFGHIJKLMNOPQRSTUVWXY
     Z"
1040 chrs$="{$%&'^@+-£.}"
1050 legal$=nums$+lets$+chrs$
1060 maxlen=8 'for AmsDOS protocol
1070 ext$=".DAT" 'default extension
1080 DIM msg$(4)
1090 FOR n=0 TO 4
1100 READ msg$(n):NEXT
1110 DATA Including .DAT as extension
1120 DATA No filename given
1130 DATA 8 characters maximum please
1140 DATA Illegal character in filena
     me
1150 DATA 3 characters maximum extens
     ion
1160 RETURN
1170 '
1180 'Get filename
1190 LINE INPUT"Filename";name$
1200 name$=UPPER$(name$):RETURN
1210 '
1220 'Check filename
1230 GOSUB 1290 'check length
1240 GOSUB 1400 'check characters
1250 GOSUB 1340 'check extension
1260 RETURN
1270 '
1280 'Check length of filename
1290 IF LEN(name$)=0 THEN ERROR 100
1300 IF LEN(name$)>8 THEN ERROR 101
1310 RETURN
1320 '
1330 'Check extension
1340 dot=INSTR(name$,".")
1350 IF dot<>0 AND LEN(name$)-dot>3 T
     HEN ERROR 103
1355 IF dot=1 THEN n=1:ERROR 102
1360 IF dot=0 THEN ERROR 99
1370 RETURN
1380 '
1390 'Check for illegal characters
1400 FOR n=1 TO LEN(name$)
1410 a$=MID$(name$,n,1)
1420 yes=INSTR(legal$,a$)
1430 IF yes=0 THEN ERROR 102
1440 NEXT:RETURN
1450 '
1460 'Error trap
1470 IF ERR=99 THEN GOTO 1550
1480 PRINT
1490 PRINT"Error - ";msg$(ERR-99)
1500 IF ERR=102 THEN GOSUB 1600
1510 PRINT
1520 RESUME 40 'get filename again
1530 '
1540 'Append .DAT to filename
1550 PRINT:PRINT msg$(ERR-99):PRINT
1560 name$=name$+ext$
1570 RESUME NEXT 'now carry on
1580 '
1590 'Show illegal character
1600 PRINT:PRINT name$
1610 PRINT SPACE$(n-1);CHR$(94)
1620 RETURN
```

*Figure III: Using customised error numbers*

the system in an error trapping routine.

Figure III is a routine for trapping errors before the program attempts to load or save using a typed-in filename. It's a "filename verification" routine. The actual error trap is between lines 1450 and 1580, and this responds to five customised error numbers invoked in different parts of the program.

Let's take a look at the first one invoked, ERROR 100, in line 1290. It simply says: If the length of the filename is zero, then error 100 has occurred. Because an error has occurred the program shoots off the error trap, where it carries out the instructions it finds there.

In the error trap, line 1470 is ignored because the error number isn't 99, and then it prints an error message.

The error message array is set up in the initialisation subroutine. In this case I've only used five messages, so the array is msg$(0) to msg$(4).

Each message corresponds to a particular error, and they are stored in the array in the same order as the error numbers so we can subtract 99 (the lowest customised error number we have used) from the ERR number to get the correct subscripts for msg$.

We could just as easily have used msg$(99) to msg$(103), but although this makes the program more readable, we'd have to dimension the msg$ array to 103 subscripts, which would waste an awful lot of space as msg$(0) to msg$(98) would be unused.

After ignoring line 1500 (because the error number isn't 102) and printing a blank line for neatness, the program (in line 1520) is asked to go back and resume execution from line 40, where a GOSUB 1190 starts off the input sequence all over again, making the program run smoothly without any crashes.

## Ad infinitum . . .

If we had left the 40 off after the RESUME, the program would have continued execution from where it left off, that is, from the line that caused the error in the first place. In this case we don't want that as it would cause another error, and another error, and another error...

We could also have asked it to RESUME NEXT, which would have made it go back and continue execution from the line following the one in which the error occurred.

All three versions of RESUME have their uses, but RESUME <line number> is the one you'll probably use most. Think of it simply as a GOTO – which is what it really is – and you'll have no problems using it.

For ERROR 99 – which is invoked in line 1360 if there isn't a fullstop in the filename – we do something a bit clever. Instead of forcing the user to enter the name again, line 1470 in the error trap branches control off to a special little routine to append a default extension (.DAT).

After printing a message and appending the extension, the program is this time asked to resume execution from the line following the one the error occurred in, which is the Return statement in the subroutine we jumped out of because of the error.

In other words, here we've used a customised error number not only to detect a program error – the absence of an extension in the filename – but to actually correct the error and carry on the program from where it left off.

With ON ERROR GOTO and its related keywords, you can make a program really robust. There's nothing worse when a program crashes because of bad or silly input by the user.

But remember, the best and most intelligent error traps are the ones that go unnoticed. Error trapping is an art. Always look on it as such and it will never become a chore. That's it. Tarra.

# CAGE PAGE

**Amster's cage is an area of Prestel where Amstrad computer users congregate. It is a melting pot for ideas. Ask a question and someone is bound to know the answer. Ian Hoare acts as referee and has selected some highlights.**

### From DAVID JANDA

Help!! I am having a great deal of trouble with Kermit on my 6128. I have it working on quite a few other computers, but with 6128 and Pace Series 4, all I get on entering it is a string of "d"s. Any idea if it is the cable, or is my version of Kermit faulty?

● *If you have used Mex with 6128 and Pace, as I know you have, then it is unlikely to be the cable, could it be that Kermit is in Echo mode, and you are getting feedback?*

### From MR B DE-LARA

Hello Ian, could anybody help. I hope this weekend to talk to a BBC with Kermit. I downloaded KERMIT.COM, KERMIT. EXE and KERMIT.WS. I have read the file KERMIT.WS. I can run KERMIT.COM. But the KERMIT.EXE I can do nothing with. Any one know what that one is for?

Also there is another file which I downloaded, KERMIT.LOG. Again I can do nothing with. Are the baud rates already set? If they are , what are they? If not how do you set them?

The file KERMIT.WS is not very clear. It says in the file that hardware dependent things are kept in the files FLK.H and FLIO.C. I can't find these files anywhere on the disc or on the BB where I downloaded.

Could anyone MBX a dimwit like me with any information on Kermit. I have a feeling that KERMIT.EXE is for another machine. Thanks.

● *As .COM is to CP/M, so .EXE is to MSdos I suspect that your baud rates should be set from SETSIO before entering Kermit, though MEX for example does NOT use SIO, but drives the Ports directly.*

### From ANDREW MARGOLIS

Lots of users did ask for Kermit, so that's now in – and Kermit uses 94 byte packets!

● *Thanks for that. I haven't used Kermit. Am I right in thinking that it needs a lot of code to implement?*

### From ANDREW MARGOLIS

Indeed, you're right about Kermit using a lot of code. The COMM+ implementation takes up about 5k – which is an awful lot for me. And I haven't put in sliding windows either, though it does do all the various checksums; character quotes, repeated compression – and also does the server end. If I hadn't been asked about it so often, I'd have my doubts.

● *From what I have been told about the compactness of your code that is one HELL of a lot. Is it really that good?*

### From ANDREW MARGOLIS

I actually up the length of the Kermit code – the protocol itself takes 3300 bytes, and the data space, the menu and associated code takes 1103 bytes – that's 4403 bytes or 4.3K.

There's a few other extra bits in the latest COMM+ to make it almost 5k bigger. But I haven't yet looked at shortening it. In the 1st release the main object was that it worked.

More on the subject of Kermit. It is fashionable and in demand, partly because it runs on so many different types of computer (not just micros).

It wasn't designed either for efficiency or compactness. It has more in common with telesoftware, in that you don't deal with raw data (as with Xmodem and derivatives) but with data converted into packets, with the main object of making all the data transmittable over any type of link. Hence the elimination of control codes and the smallish packet size.

Unlike a telesoftware downloader, you have to be able to generate the packets as well as decode them – and virtually everything that defines them is configurable – length, special quote characters, start of packet characters, type of checksums etc. And the transmitting end and receiving end can in theory be using different parameters.

The complexity of the protocol derives partly from this flexibility, and partly from the nature of any set of rules for encoding/decoding data. Whether it's a good protocol or not is beside the point – it constitutes a standard, which is what communications is all about.

But if you are logged on to a bulletin board which offers a choice of download protocols, I wouldn't choose Kermit over an Xmodem type by choice – two reasons for it are because even the best versions with sliding windows and other frills can only get up to 85 per cent efficiency on most types of data, and unless you are using a packet switch system with a windowing Kermit, even Xmodem will be faster.

Second reason is that Xmodem type protocols typically use single ACKS per block, whereas Kermit uses an ACK packet of at least 4 bytes – which means that it is more liable to generate false errors through acknowledge corruption than systems that use a single ACK character.

But comms software provides a choice of error-correcting systems, not primarily because people need a choice of protocols, but in order to increase the chance that at least one will work properly with another computer.

That's why Kermit is in demand – good and bad don't really apply – either something will work or it won't, and if Kermit works where nothing else will, there isn't a lot else to say.

### From M SALLEH & R TOUW

OK David if you want a working version of Kermit on 6128 you may log into my B Board and download it. I don't know where you are calling from, but if you are far from London it is not worth it. Call now Infotel Ros (01-581 3376). See you there. And also to the user who wants various COMMS software in CP/M may log in as well.

# CAGE PAGE

### From MR J H RAWNSLEY

Kermit may not be the best file transfer protocol available. Its advantage is that it has been implemented on so many machines. The only thing to remember is it needs 8N1, but functions happily with just the Tx, Rx and Gnd wires connected.

I use it daily to transfer messages to and from our university link to BITNET. As my machine is a PCW I cannot help David Janda, but I would try connecting each machine's RTS to its own CTS and just use the two data lines between the machines.

● *Do you think it is very likely that David's string of Ds could be a cable fault? I am ignorant on Kermit, but I HAVE to say it sounds like feedback.*

### From MR J H RAWNSLEY

In terminal mode Kermit does not echo back received characters, at least not in V4.08 which I use. So it is hard to see how David Janda has a feedback loop, especially if he is using a cable with just 2-3 and 3-2 null-modem connection. With such a connection I've never had any problems.

● *That's working directly computer to computer. I suspect that David is using it via a modem.*

### From M SALLEH & R TOUW

David Janda has logged into my board and downloaded Kermit which I tested with WS4000 and worked fine. I don't see why David couldn't make it work with his Pace Series 4.

David, did you get OK back when you typed AT..? Did you set any registers in the Pace memory which might cause your Modem to act very strangely to Kermit? I can't remember the command to reset the presetting register on Pace which has battery backup to store a register.

On WS4000 I just have to issue a command ATZ to reset all registers in the Modem to their default values. If I have no problem with this version of Kermit, I don't know why you do. If you do, it could be that your connecting cable is wrong,or the modem is faulty. I'm not sure.

Since this version of Kermit on Infotel ROS has been set up for a 6128, I believe there is nothing wrong with it. Sometimes we forget to use Uppercase letters to enter a Hayes command, if we always depend upon the software to dial for us, it might be as well to check it. Try again.

### From DAVID JANDA

Hi – re Kermit. Well I took the advice of Mohamed Salleh and logged onto his BB Infotel Ros. Well! In the four years I have been writing as a freelance journo (comms esp.) I have logged on to hundreds of BBs and commercial databases, and I can, without reservation, say that Mohamed's BB is one of the best.

Feature packed, excellent menu structure, very well formatted, it's got the lot. I kid you not people, this is one of the very best. So phone now on 01-581 3376.

Kermit! Well I downloaded Kermit on Infotel using MEX with YMODEM (1K packets) with no problem. After uncrunching I ran the prog without success. HOWEVER! I was a little too hasty and forgot to set the serial port with SETSIO. Now all is perfect!!!

A note of caution to Hayes modem users you MUST have pin 20 connected. So there you have it, an opportunity to use an excellent BB, and use an excellent program. What more could a comms fan ask for? Ta for everyones' help. I'm off to Infotel!



# WORLD WAR II

**_Ivor Sturgess gives you the opportunity to devise the strategy which will bring peace to war-torn Europe_**

THIS is a strategy game for one or two players which simulates a war in Europe. It only works on the CPC 664 and CPC 6128. It will not work on a CPC 464 unless you have fitted a rom other than V1.0.

In the one player mode, you (Red) play against the computer (Black). The game is played on a 26 by 19 grid, and the object is to occupy all your opponent's squares.

Each square has an alphabetical grid reference. When asked for your target square, enter the horizontal and then vertical reference. So to occupy Northern England you would type EF return.

Certain squares contain hidden resources, and you are awarded points if you occupy one of these. (Mineral resources =10, Industry =15, and oil fields =20).

Resources are consumed as you move. Moving to a square next to one you occupy uses one move, attacking an opponent uses two, an airboure operation three and an airborne attack on an opponent's square four moves.

The number of moves you get each turn is determined by the amount of resources you have. 0-24 one move, 25-45 two moves, 50 - 74 three, 75 – 99 four and so on.

Normally moves are made to squares next to the ones you already occupy, but you can launch an airborne attack on any square. This takes three moves – four if the square is occupied.

Four neutral countries on the map have the ability to defend themselves. If one is attacked its army will join the opponent's side.

To save a game, when asked for your target square enter the word SAVE then press any key after inserting the disc. You can only load a saved game at the start up screen.

## Computer logic

At first glance this section of the program may seem a bit messy. This is because, in order to keep the running time to a minimum, it has been written in a sub-routine within sub-routine format.

By using this method, decisions are made instantly, or within 3 seconds, in 99 per cent of cases However, under extreme conditions, it may take up to a minute for the machine to decide on its next move.

To limit the number of moves the computer will make on each campaign, line 1960 decrements the variable stp by 1 and checks if its value has reached 0. If it has, stp is reset to 30 and the sub-routine starting at line 2240 is called.

This sub-routine selects a number 0-9 at random. If this number is between 0 and 7 a 16 move campaign is selected from the data statements on lines 2470-2540 and the coordinates stored in the variables tx and ty.

If the random number is 8 or 9, a 4 x 4 block of squares is selected at random and stored in the same way. Lines 2400- 2430 ensure that if the machine is winning at least one of the squares is occupied by player 2.

Lines 2000-2230 then make the appropriate moves using the values stored in tx and ty. In addition to this, if player 2 is outnumbered by 10 to 1 or more, lines 2440-2460 select a "move in and finish him off" campaign. Line 1980 will cause the computer to consider a retreat to Iceland if it is outnumbered by 2 to 1, and Line 1970 will bring about a full scale retreat to a far corner of the map if the machine is losing and has the resources to do so.




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## PROGRAM BREAKDOWN

| | |
|---|---|
| 10-16 | Dimension arrays and display the title screen |
| 70-140 | Reads the screen addresses from the data statements in lines 1460-1740 and draws the map |
| 150-160 | Store the state of occupation of each square on the map at the beginning of the game into array occ using the data from lines 1750-1930 |
| 170-250 | Randomises the position of resources at the beginning of the game and store this in array resorc |
| 260-370 | Set the state of the program ready to begin the game. |
| 380-570 | The main game loop. It checks who's turn it is, receives the player's instructions, checks if the move is valid, and acts on it accordingly |
| 580-610 | Sub-routine to receive all keyboard instructions and convert them into upper case |
| 620-660 | Display the updated scores to the right of the map |
| 670-710 | Alter the variable occ to the current player's number after a successful operation, and plots the player's colour on to that square |
| 720-780 | Check if any resources have been won, and if so increment the variable res by the appropriate number |
| 790-1000 | Check the variable occ for a value 36. If this is so then a neutral territory is under attack and you are asked if you wish to invade. If you answer yes the variable occ is changed to 7 (unoccupied), an extra army plotted and allocated to your opponent, and the move is continued |
| 1010-1100 | Decide the outcome of a battle, and act accordingly |
| 1110-1280 | Check if the target square is next to an occupied square. If not an airborne operation is offered and, if accepted, carried out |
| 1290-1330 | Line 410 checks if either player has lost the game at the beginning of each move. If so, this routine ends the game and runs the program again if a new game is selected |
| 1340-1390 | Saves all variables onto a datafile (file name WARDATA) |
| 1400-1440 | Load WARDATA if continue saved game is selected next time the program is run |
| 1450-1740 | Data statements containing the screen addresses to plot the map coastlines |
| 1750-1930 | Data statements containing the initial occupation of each square<br>0 = Sea<br>1 = Player 1<br>2 = Player 2<br>3 = Polish territory<br>4 = Russian territory<br>5 = Spanish territory<br>6 = Turkish territory<br>7 = Unoccupied square |
| 1940-2540 | The Computer's move in the one-player game, dealt with by the section computer logic |

```
1 ' ---------- WORLD WAR II -------
2 ' ------ By IVOR STURGESS 1978 ----
3 '
4 ' For CPC6128 & 664 ONLY
5 '
6 ' ALL REMs may be omitted
7 '
10 DIM occ(25,18),resorc(25,18),tx(15
   ),ty(15)
20 MODE 1:BORDER 14:INK 0,14:INK 1,0:
   INK 2,6:INK 3,22:WINDOW #1,1,40,23
   ,25
30 PEN 1:PEN #1,1:a$="ABCDEFGHIJKLMNO
   PQRSTUVWXYZ":b$="  WORLD   WAR   2
     ":LOCATE 2,1:PRINT a$:FOR i=1 TO
    19:PRINT MID$(a$,i,1):LOCATE 28,i
   +1:PRINT MID$(a$,i,1);"      ";MID$
   (b$,i,1):NEXT:PRINT" ";a$
40 PRINT #1,"      BY    IVOR STURGESS
         1987"
50 ENV 1,3,3,1
60 FOR i=1 TO 2:res(i)=10:arm(i)=4:NE
   XT
```

```
70 ' DRAW MAP ************************
   **
80 GRAPHICS PEN 3:MOVE 66,373:FOR i=1
    TO 10:READ j,k:DRAW j,k:NEXT:MOVE
   75,365:FILL 3
90 MOVE 70,273:FOR i =1 TO 24:READ j,
   k:DRAW j,k:NEXT:MOVE 89,281:FILL 3
100 MOVE 77,300:FOR i =1 TO 13:READ j
    ,k:DRAW j,k:NEXT:MOVE 70,290:FILL
    3
110 MOVE 190,215:FOR i=1 TO 13:READ j
    ,k:DRAW j,k:NEXT
120 MOVE 265,243:FOR i =1 TO 8:READ j
    ,k:DRAW j,k:NEXT
130 MOVE 237,383:FOR i=1 TO 163:READ
    j,k:DRAW j,k:NEXT:MOVE 425,380:FI
    LL 3:PLOT 145,196:PLOT 144,195
140 MOVE 127,189:FOR i=1 TO 3:READ j,
    k:DRAW j,k:NEXT:MOVE 135,187:FILL
    3
150 ' READ DATA FOR GAME ************
```

```
160 FOR y=0 TO 18:FOR x=0 TO 25:READ
    occ(x,y):NEXT x,y
170 FOR x=0 TO 25:FOR y=0 TO 18:resor
    c(x,y)=0:NEXT y,x:RANDOMIZE TIME
180 FOR x=0 TO 21:FOR y=0 TO 12:i=INT
    (RND(1)*10):IF i<3 THEN resorc(x,
    y)=1
190 NEXT y,x
200 FOR x=3 TO 23:FOR y=5 TO 10:i=INT
    (RND(1)*10):IF i<3 THEN resorc(x,
    y)=2
210 NEXT y,x
220 FOR x=14 TO 25:FOR y=0 TO 18:i=IN
    T(RND(1)*10):IF i=3 THEN resorc(x
    ,y)=3
230 NEXT y,x
240 FOR x=1 TO 25:FOR y=13 TO 16:i=IN
    T(RND(1)*10):IF i<3 THEN resorc(x
    ,y)=3
250 NEXT y,x
260 PRINT #1:PRINT #1,"Do you wish to
     continue a Saved Game ?":GOSUB 5
    90
270 IF a$="Y"THEN GOSUB 1410:GOTO 320
280 IF a$<>"N"THEN 260
290 PRINT #1:PRINT #1,"ONE (1) or Two
     (2) Player mode ?"
300 GOSUB 590
310 num=VAL(a$):IF num<1 OR num>2 THE
    N 300
320 CLS #1:FOR i=1 TO 20:LOCATE 34,i:
    PRINT" ":NEXT
330 GOSUB 630
340 GRAPHICS PEN 1:FOR i=31 TO 415 ST
    EP 16:FOR j=367 TO 95 STEP -16:PL
    OT i,j:NEXT j,i
350 FOR x=0 TO 25:FOR y=0 TO 18:IF oc
    c(x,y)=1 THEN GRAPHICS PEN 1:GOSU
    B 690
360 IF occ(x,y)=2 THEN GRAPHICS PEN 2
```

## VARIABLES

| | |
|---|---|
| play | Checks whether it's player 1 or 2's turn |
| arm | The number of armies (territories) each player has |
| res | Resources held by each player |
| occ | Occupation of each square |
| resorc | Resources in each square |
| num | Number of players |
| x-y | XY co-ordinates of target square |
| d | Delay loop when required |
| i,j,k,l,m,n, | General purpose variables |
| stp,tx,ty | See computer logic section. |

```
   :GOSUB 690
370 NEXT y,x:IF a$="Y"THEN GRAPHICS P
    EN play:PEN #1,play:GOTO 420
380 ' MAIN GAME LOOP ****************
390 play=play+1:IF play=3 THEN play=1
400 GRAPHICS PEN play:PEN #1,play:mv=
    INT(res(play)/25)+2
410 IF arm(1)=0 OR arm(2)=0 THEN 1300
420 mv=mv-1:IF mv=0 THEN 390
430 IF num=1 AND play=1 THEN 1950
440 CLS #1:PRINT #1,"Player"play"you
    have"mv;:IF mv=1 THEN PRINT #1,"m
    ove."ELSE PRINT #1,"moves."
450 INPUT #1,"Enter your Target Squar
    e ";a$
460 a$=UPPER$(a$)
470 IF a$="SAVE"THEN 1350
480 IF LEN(a$)<>2 THEN 450
490 x=ASC(a$)-65
500 y=ASC(MID$(a$,2,1))-65:IF y<0 OR
    y>18 THEN PRINT #1,"No such squar
    e.":GOTO 450
510 IF occ(x,y)=0 THEN PRINT #1,"That
    's the sea.":GOTO 450
520 IF occ(x,y)=play THEN PRINT #1,"Y
    ou already occupy that square.":G
    OTO 450
530 GOSUB 1120:IF i=0 THEN 450
540 IF occ(x,y)=7 THEN res(play)=res(
    play)-1:GOSUB 680:GOSUB 730:arm(p
    lay)=arm(play)+1:GOSUB 630:GOTO 4
    10
550 IF occ(x,y)>2 AND occ(x,y)<7 THEN
     800
560 IF occ(x,y)>0 AND occ(x,y)<3 THEN
     res(play)=res(play)-1:GOSUB 1020
    :GOSUB 630:GOTO 410
570 GOTO 390
580 ' INKEY *************************
```

```
590 a$=INKEY$:IF a$=""THEN 590
600 a$=UPPER$(a$)
610 RETURN
620 ' DISPLAY SCORES ****************
630 IF res(play)<0 THEN res(play)=0
640 PEN 1:LOCATE 32,2:PRINT"ARMIES":L
    OCATE 31,4:PRINT USING"######";ar
    m(1):LOCATE 31,6:PRINT"RESOURCES"
    :LOCATE 31,8:PRINT USING"######";
    res(1)
650 PEN 2:LOCATE 32,13:PRINT"ARMIES":
    LOCATE 31,15:PRINT USING"######";
    arm(2):LOCATE 31,17:PRINT"RESOURC
    ES":LOCATE 31,19:PRINT USING"####
    ##";res(2)
660 PEN 1:RETURN
670 ' PLOT OCCUPIED SQUARES *********
680 occ(x,y)=play
690 i=x*16+16:j=381-(y*16):FOR k=i TO
     i+13:FOR l=j TO j-13 STEP -1
700 IF TEST(k,l)<>0 THEN PLOT k,l
710 NEXT l,k:RETURN
720 'ALOCATE RESOURCES **************
730 IF resorc(x,y)=0 THEN RETURN
740 PRINT #1,"This square contains ";
750 IF resorc(x,y)=1 THEN PRINT #1,"m
    ineral resources."
760 IF resorc(x,y)=2 THEN PRINT #1,"i
    ndustry."
770 IF resorc(x,y)=3 THEN PRINT #1,"o
    il feilds."
780 FOR i=1 TO(resorc(x,y)*5)+5:res(p
    lay)=res(play)+1:GOSUB 630:SOUND
    2,1000,8,12:FOR j=0 TO 200:NEXT j
    ,i:RETURN
790 ' INVADE NEUTRAL SQUARE *********
800 PRINT #1,"That's ";
810 IF occ(x,y)=3 THEN b$="Polish"
```

```
820 IF occ(x,y)=4 THEN b$="Russian"
830 IF occ(x,y)=5 THEN b$="Spanish"
840 IF occ(x,y)=6 THEN b$="Turkish"
850 IF num=1 AND play=1 THEN 900
860 PRINT #1,b$;" territory.":PRINT #
    1,"Do you wish to declare war ?"
870 GOSUB 590
880 IF a$="N"THEN 450
890 IF a$<>"Y"THEN 870
900 PRINT #1,"The ";b$;" army is mobi
    lizing.":IF play=1 THEN arm(2)=ar
    m(2)+1:GRAPHICS PEN 2:i=2
910 IF play=2 THEN arm(1)=arm(1)+1:GR
    APHICS PEN 1:i=1
920 GOSUB 630:m=x:n=y:IF occ(x,y)=3 T
    HEN x=9:y=6:occ(x,y)=i:GOSUB 690:
    k=3
930 IF occ(x,y)=4 THEN x=12:y=5:occ(x
    ,y)=i:GOSUB 690:k=4
940 IF occ(x,y)=5 THEN x=2:y=9:occ(x,
    y)=i:GOSUB 690:k=5
950 IF occ(x,y)=6 THEN x=12:y=11:occ(
    x,y)=i:GOSUB 690:k=6
960 GRAPHICS PEN play:x=m:y=n:FOR i=0
     TO 25:FOR j=0 TO 18
```



```
970 IF occ(i,j)=k THEN occ(i,j)=7
980 NEXT j,i
990 IF num=1 AND play=1 THEN RETURN
1000 GOTO 540
1010 'BATTLE ************************
1020 CLS #1:PRINT #1,"BATTLE FOR SQUA
     RE ";CHR$(x+65);CHR$(y+65);
1030 SOUND 1,2000,100,15,1,,15:i=INT(
     RND(1)*10):IF i>arm(2)THEN 1030
1040 SOUND 1,2000,100,15,1,,15:j=INT(
     RND(1)*10):IF j>arm(1)THEN 1040
1050 PRINT #1,"   Losses   ";:PEN #1,1
     :PRINT #1,i;:PEN #1,2:PRINT #1,j
     :PEN #1,play:PRINT #1:res(play)=
     res(play)-1
1060 IF play=1 AND i<j THEN arm(1)=ar
     m(1)+1:arm(2)=arm(2)-1:GOTO 1100
1070 IF play=2 AND j<i THEN arm(2)=ar
     m(2)+1:arm(1)=arm(1)-1:GOTO 1100
1080 l=1:PRINT #1,"Attack Unsuccessfu
     l.   Press any key.":GOSUB 590
1090 RETURN
1100 FOR d=0 TO 2000:NEXT:GOSUB 680:G
     OSUB 730:RETURN
1110 'AIR OPPERATION ****************
1120 i=0:j=x-1:IF j<0 THEN 1140
1130 IF occ(j,y)=play THEN i=1
1140 j=y-1:IF j<0 THEN 1160
1150 IF occ(x,j)=play THEN i=1
1160 j=x+1:IF j>25 THEN 1180
1170 IF occ(j,y)=play THEN i=1
1180 j=y+1:IF j>18 THEN 1200
1190 IF occ(x,j)=play THEN i=1
1200 IF i=1 THEN RETURN
```

```
1210 PRINT #1,"That's an air opperati
     on. Continue ?"
1220 GOSUB 590
1230 IF a$="N"THEN i=0:RETURN
1240 IF a$<>"Y"THEN 1220
1250 IF mv<3 THEN PRINT #1,"You do no
     t have the resources.":i=0:RETUR
     N
1260 mv=mv-2:res(play)=res(play)-2:i=
     1
1270 ' AIR ATTACK SOUND
1280 FOR d=0 TO 1000:NEXT:SOUND 2,250
     0,650,8:FOR d=0 TO 2600:NEXT:FOR
     d=0 TO 1:SOUND 1,2000,100,15,1,
     ,15:NEXT:FOR d=0 TO 4000:NEXT:RE
     TURN
1290 ' END GAME *********************
1300 a$="":CLS #1:PRINT #1,"GAME OVER
     "
1310 FOR d=0 TO 5000:NEXT
1320 PRINT #1:PRINT #1,"Press any key
      for another game."
1330 GOSUB 590:RUN
1340 'SAVE GAME *********************
```

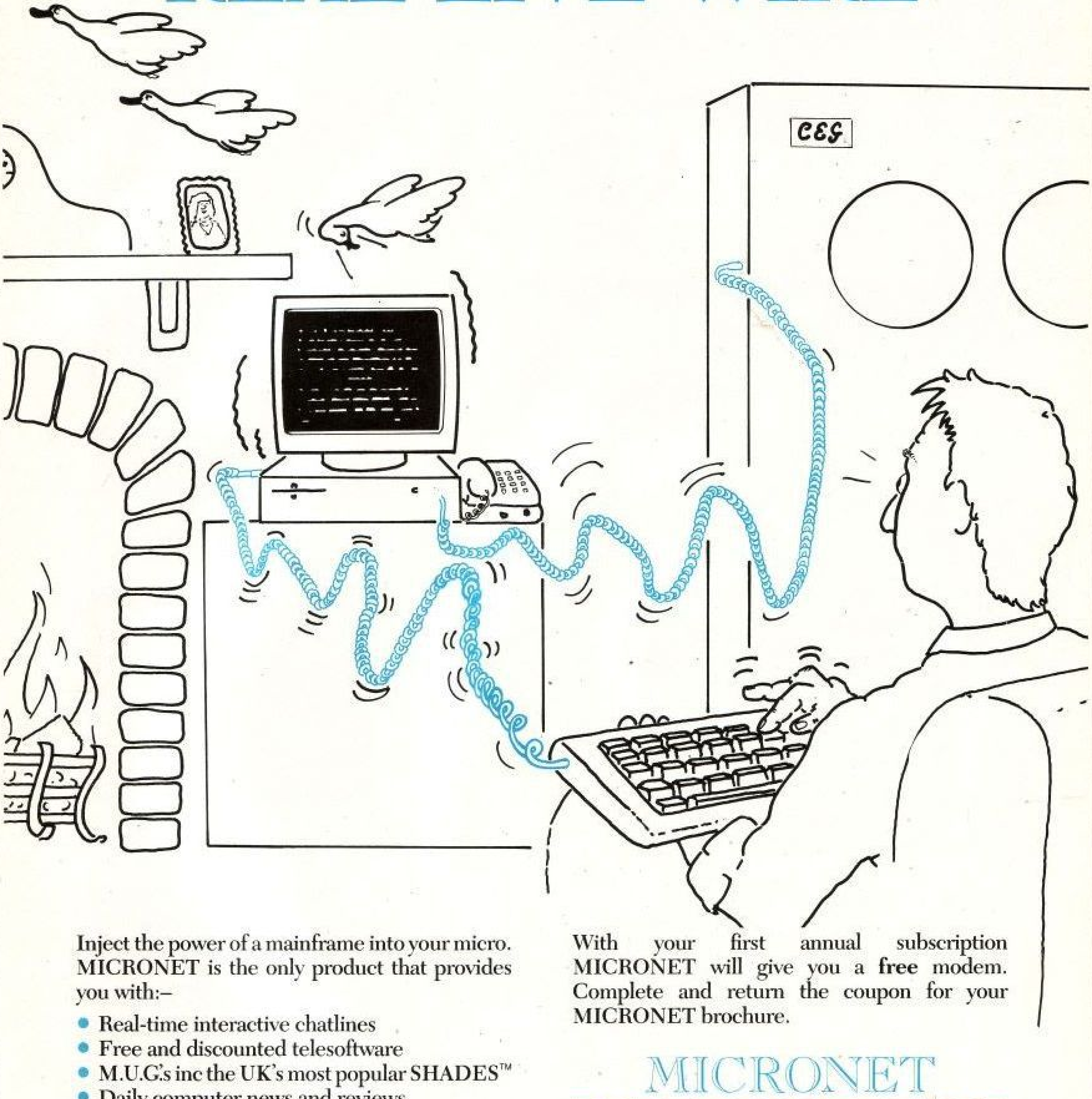
```
1350 CLS #1:PRINT #1,"INSERT DISC THE
     N PRESS ANY KEY.":GOSUB 590:CLS
     #1
1360 mv=mv+1:OPENOUT"WARDATA":WRITE #
     9,mv,play,arm(1),arm(2),res(1),r
     es(2),stp,num
1370 FOR i=0 TO 25:FOR j=0 TO 18:WRIT
     E #9,occ(i,j),resorc(i,j):NEXT j
     ,i
1380 FOR i=0 TO 15:WRITE #9,tx(i),ty(
     i):NEXT
1390 CLOSEOUT:GOTO 1320
1400 ' LOAD SAVED GAME **************
1410 CLS #1:OPENIN"WARDATA":INPUT #9,
     mv,play,arm(1),arm(2),res(1),res
     (2),stp,num
1420 FOR i=0 TO 25:FOR j=0 TO 18:INPU
     T #9,occ(i,j),resorc(i,j):NEXT j
     ,i
1430 FOR i=0 TO 15:INPUT #9,tx(i),ty(
     i):NEXT
1440 RETURN
1450 'ICELAND
1460 DATA 73,375,73,370,86,367,83,357
     ,68,355,63,363,67,365,65,370,69,
     369,66,373
1470 'BRITAIN
1480 DATA 81,279,77,282,81,285,82,287
     ,79,286,81,290,85,288,86,292,85,
     297,83,296,84,302,82,301,84,307,
     83,311,89,319,94,317,91,313,95,3
     10,91,304,95,283,99,280,94,276,9
     6,272,71,275
1490 ' IRELAND
1500 DATA 78,295,75,295,72,286,59,288
     ,58,290,65,294,63,296,65,300,69,
     299,72,302,76,303,75,301,77,300
1510 ' BLACK SEA
1520 DATA 204,240,212,238,214,230,223
     ,235,217,240,231,248,226,235,245
     ,227,244,217,220,219,204,208,193
     ,210,190,215
1530 ' CASPIAN SEA
1540 DATA 273,263,295,267,300,250,290
     ,252,305,198,281,201,279,228,265
     ,243
1550 ' NORWAY
1560 DATA 227,370,225,377,218,365,219
     ,360,214,361,215,365,212,367,207
     ,365,210,359,213,354,206,346,208
     ,343,200,344,204,338,195,339,194
     ,347,188,351,203,349,205,358,172
```

```
,373,132,330,121,325,118,311,121
,302,134,308,137,288,142,288
1570 ' BALTIC
1580 DATA 143,290,148,290,150,304,156
     ,306,156,312,152,315,154,326,164
     ,334,163,338,167,343,172,337,163
     ,324,164,305,168,310,185,314,185
     ,310,170,307,169,303,173,294,169
     ,295,166,297,163,289,164,285,156
     ,279,156,282,142,278,135,281,132
     ,280,128,283
1590 ' DENMARK & CHANNEL
1600 DATA 129,291,132,292,130,294,132
     ,299,130,300,124,297,124,287,125
     ,287,124,279,114,274,107,267,93,
     265,86,264,84,266,82,265,83,261,
     79,260,76,263,71,263,70,259
1610 ' SPAIN
1620 DATA 78,244,72,231,52,242,44,242
     ,36,219,34,207,40,208,45,198,47,
     198,51,199,62,196,65,199,74,204,
     73,209,77,214,90,218
1630 ' ITALY
1640 DATA 92,225,97,225,104,223,114,2
     27,119,226,142,197,141,190,146,1
     95,144,199,146,203,151,199,130,2
     24,131,230,135,230,136,227
1650 ' GREECE & TURKEY
1660 DATA 138,227,157,210,158,201,171
     ,180,175,187,178,188,173,198,176
     ,200,176,204,183,205,190,189,204
     ,180,207,185,217,182,230,189
1670 ' NORTH AFRICA
1680 DATA 233,171,231,170,228,157,210
     ,159,202,155,163,163,162,150,152
     ,148,136,154,135,160,113,171,119
     ,185,115,187,59,189,48,192,46,19
     6
1690 ' ARABIA
1700 DATA 38,190,20,183,15,170,15,81,
     255,81,223,139,228,136,230,138,2
     73,81,339,81,356,110,338,125,337
     ,135,327,123,320,125,290,148
1710 ' ASIA
1720 DATA 300,151,330,137,335,145,340
     ,137,360,130,395,128,430,90,430,
     383,237,383
1730 ' SICILY
1740 DATA 137,189,135,184,127,189
1750 DATA 0,0,0,7,7,0,0,0,0,7,7,0,0,4
     ,4,4,4,4,4,4,4,4,4,4,4,4
1760 DATA 0,0,0,7,7,0,0,0,7,7,7,4,4,4
     ,4,4,4,4,4,4,4,4,4,4,4,4
1770 DATA 0,0,0,0,0,0,0,7,7,7,7,4,4,4
     ,4,4,4,4,4,4,4,4,4,4,4,4
1780 DATA 0,0,0,0,0,0,7,7,7,7,7,4,4,4
     ,4,4,4,4,4,4,4,4,4,4,4,4
1790 DATA 0,0,0,0,7,0,7,7,7,7,4,4,4,4
     ,4,4,4,4,4,4,4,4,4,4,4,4
1800 DATA 0,0,7,7,7,0,7,7,7,3,4,4,4,4
     ,4,4,4,4,4,4,4,4,4,4,4,4
1810 DATA 0,0,0,7,2,7,7,1,3,3,4,4,4,4
     ,4,4,4,4,4,4,4,4,4,4,4,4
1820 DATA 0,0,0,7,7,7,7,1,3,3,3,4,4,4
     ,4,4,4,4,4,4,4,4,4,4,4,4
1830 DATA 0,5,5,7,2,7,7,1,7,3,3,4,4,4
     ,4,4,0,4,4,4,4,4,4,4,4,4
1840 DATA 0,7,5,5,7,7,7,7,7,7,7,7,4,4
     ,4,4,4,4,4,4,4,4,4,4,4,4
1850 DATA 0,5,5,5,7,0,7,1,7,7,7,6,6,6
     ,6,7,7,7,7,7,7,7,7,7,7,7
1860 DATA 0,2,5,5,0,0,0,7,7,7,7,6,6,6
     ,6,7,7,7,7,7,7,7,7,7,7,7
1870 DATA 7,7,7,7,7,7,7,7,0,7,7,6,6,6
     ,7,7,7,7,7,7,7,7,7,7,7,7
1880 DATA 7,7,7,7,7,7,7,7,0,7,0,0,0,7
     ,7,7,7,7,7,7,7,7,7,7,7,7
1890 DATA 7,7,7,7,7,7,7,7,7,7,7,7,7,2
     ,7,7,7,7,7,7,7,7,7,7,7,7
     ,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7
1900 DATA 7,7,7,7,7,7,7,7,7,7,7,7.
     ,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7
1910 DATA 7,7,7,7,7,7,7,7,0,0,7,7
     ,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7
1920 DATA 7,7,7,7,7,7,7,7,0,0,0,7
     ;7,7,7,7,7,7,7,7,7,7,7,7,7,7,7
1930 DATA 7,7,7,7,7,7,7,0,0,0,0,7
     ,7,7,7,7,7,7,7,0,0,0,0,7
1940 ' COMPUTERS MOVE ***************
     **
1950 CLS #1:PRINT #1,"Player 1 has"mv
     ;:IF mv=1 THEN PRINT #1,"move."E
     LSE PRINT #1,"moves."
1960 stp=stp-1:IF stp<0 THEN stp=30:G
     OSUB 2240
1970 IF mv>2 AND arm(1)<arm(2)/(mv*1.
     6)AND stp>20 THEN 2140
1980 IF mv>3 AND arm(1)<arm(2)/2 THEN
     2110
1990 IF mv>4 AND arm(1)>arm(2)*3 THEN
     2170
```



```
2000 FOR i=0 TO 15:IF occ(tx(i),ty(i)
     )<2 THEN 2050
2010 IF tx(i)>0 THEN IF occ(tx(i)-1,t
     y(i))=1 THEN 2070
2020 IF tx(i)<25 THEN IF occ(tx(i)+1,
     ty(i))=1 THEN 2070
2030 IF ty(i)>0 THEN IF occ(tx(i),ty(
     i)-1)=1 THEN 2070
2040 IF ty(i)<18 THEN IF occ(tx(i),ty
     (i)+1)=1 THEN 2070
2050 NEXT
2060 stp=0:GOTO 1960
2070 stp=stp-1:res(1)=res(1)-1:x=tx(i
     ):y=ty(i):PRINT #1,"Player 1 is
     attacking square ";CHR$(x+65);CH
     R$(y+65):FOR d=0 TO 500:NEXT
2080 IF occ(x,y)=7 THEN GOSUB 680:GOS
     UB 730:arm(1)=arm(1)+1:GOSUB 630
     :GOTO 410
2090 IF occ(x,y)>2 AND occ(x,y)<7 THE
     N arm(1)=arm(1)+1:GOSUB 810:GOSU
     B 680:GOSUB 630:GOTO 410
2100 IF occ(x,y)=2 THEN PRINT #1,"BAT
     TLE FOR SQUARE ";CHR$(x+65);CHR$
     (y+65);:GOSUB 1030:GOSUB 630:GOT
     O 410
2110 FOR i=3 TO 4:FOR j=0 TO 1:IF occ
     (i,j)<>7 THEN 2000
2120 NEXT j,i
2130 x=4:y=1:res(1)=res(1)-3:mv=mv-2:
     PRINT #1,"Air attack on square "
     ;CHR$(x+65);CHR$(y+65):GOSUB 128
     0:GOTO 2080
2140 x=INT(RND(1)*10)+15:y=INT(RND(1)
     *10)+8:IF occ(x,y)<>7 THEN stp=s
     tp-1:IF stp>20 THEN 2140 ELSE 20
     00
2150 IF occ(x-1,y)=1 OR occ(x+1,y)=1
     OR occ(x,y-1)=1 OR occ(x,y+1)=1
     THEN i=0:tx(0)=x:ty(0)=y:GOTO 20
     70
2160 stp=9:tx(0)=x:tx(1)=x:ty(0)=y-1:
     ty(1)=y+1:tx(2)=x-1:ty(2)=y-1:tx
     (3)=x-1:ty(3)=y:tx(4)=x-1:ty(4)=
     y+1:res(1)=res(1)-3:mv=mv-2:PRIN
     T #1,"Air attack on square ";CHR
     $(x+65);CHR$(y+65):GOSUB 1280:GO
     TO 2080
2170 FOR i=3 TO 4:FOR j=0 TO 1:IF occ
     (i,j)=2 THEN 2190
2180 NEXT j,i:GOTO 2000
2190 x=4:y=1:FOR i=3 TO 4:FOR j=0 TO
     1
2200 IF occ(i,j)=1 THEN 2000
2210 IF occ(i,j)=7 THEN x=i:y=j
2220 NEXT j,i
2230 res(1)=res(1)-3:mv=mv-2:PRINT #1
     ,"Air attack on square ";CHR$(x+
     65);CHR$(y+65):GOSUB 1280:GOTO 2
     080
2240 i=INT(RND(1)*10)+1:IF arm(1)<4 T
     HEN i=9
2250 ON i GOTO 2260,2270,2280,2290,23
     00,2310,2320,2330,2350,2350
2260 RESTORE 2470:GOTO 2340
2270 RESTORE 2480:GOTO 2340
2280 RESTORE 2490:GOTO 2340
2290 RESTORE 2500:GOTO 2340
2300 RESTORE 2510:GOTO 2340
2310 RESTORE 2520:GOTO 2340
2320 RESTORE 2530:GOTO 2340
2330 RESTORE 2540
2340 FOR j=0 TO 15:READ tx(j),ty(j):N
     EXT:RETURN
2350 i=INT(RND(1)*100):IF i>22 THEN 2
     350
2360 j=INT(RND(1)*100):IF j>15 THEN 2
     360
2370 m=0:FOR k=i TO i+3:FOR l=j TO j+
     3:tx(m)=k:ty(m)=l:m=m+1:NEXT l,k
2380 IF arm(1)<arm(2)*2 THEN RETURN
2390 IF arm(1)>arm(2)*10 THEN 2440
2400 m=0:FOR i=0 TO 15:IF occ(tx(i),t
     y(i))=2 THEN m=1
2410 NEXT
2420 IF m=0 THEN stp=stp-1:IF stp>16
     THEN  2350
2430 RETURN
2440 k=0:FOR i=0 TO 25:FOR j=0 TO 18
2450 IF occ(i,j)=2 THEN tx(k)=i:ty(k)
     =j:k=k+1:IF k>9 THEN RETURN
2460 NEXT j,i:RETURN
2470 DATA 7,6,7,7,7,8,8,8,6,7,6,8,6,6
     ,7,9,6,10,6,9,7,11,8,11,7,12,12,
     16,13,14,13,15
2480 DATA 8,8,9,6,8,6,8,7,9,7,9,8,9,5
     ,10,7,10,8,7,6,7,7,7,8,6,7,6,8,6
     ,6,7,9
2490 DATA 4,8,4,7,3,7,5,7,5,8,3,8,6,7
     ,6,8,6,6,6,9,5,9,4,9,4,10,7,6,7,
     7,7,8
2500 DATA 4,6,5,6,4,5,3,6,4,4,5,4,3,5
     ,2,5,6,7,6,6,5,7,4,7,3,7,13,16,1
     3,13,6,14
2510 DATA 7,5,6,5,7,4,6,4,6,3,7,3,7,2
     ,8,2,8,1,9,1,9,0,7,6,7,7,7,8,6,6
     ,6,7
2520 DATA 12,5,11,5,11,6,11,4,10,6,10
     ,5,12,6,12,4,13,5,13,6,13,4,10,4
     ,11,7,11,8,12,7,12,8
2530 DATA 7,11,7,12,6,12,6,13,7,13,7,
     14,8,14,9,14,9,13,9,15,10,14,10,
     15,11,14,11,15,11,16,10,16
2540 DATA 7,11,7,12,6,12,5,12,4,12,3,
     12,2,12,1,12,1,11,0,12,10,14,11,
     14,12,14,12,15,11,15,12,12
```

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# DRILLER

IT has often been said that a really good computer game would put you in a world and allow you to explore. You could go anywhere, and look at objects from any angle. This will happen when computers become more powerful.

Well you don't have to wait. You don't even have to buy a more expensive computer. That world is available here and now on the Amstrad.

Driller is intended to be the first of many Freescape products from Incentive Software. Freescape is a graphics technique which involves the sort of 3D mathematics which makes your head hurt.

The computer stores a model of the world and then uses the Freescape routines to build this into a 3D image. You are a free agent within this. So if a block is suspended just above the ground you can try going under, over or around it.

All this processing takes the computer a fair amount of time – recalculating a whole screen is not an easy task. The result is a game which runs a little slowly.

Incentive has been very clever in tackling this problem – the game doesn't need to be played quickly.

The scenario is that the moon of your planet is about to blow up. You need to release all the pent-up gasses and avoid a calamity.

This is done by visiting key sites on platforms suspended above the moon's surface and drilling for gas. Hence Driller.

The drilling rigs are teleported from the home planet but you have to find the 18 sites. This can be done from one of two craft, a tank or a plane.

The plane is much quicker at getting around and can fly between platforms without using special doors. Unfortunately only the tank can lay the rigs. It is best to explore by air and then use the tank to lay drills.

In many ways Driller is a bit like an adventure. OK, it may sound like an arcade game. It does even more so when you discover that there are hostile gun emplacements and killer sats which can be disposed of with a quick blast of your laser, but essentially Driller is a thinking game. Looking at problems and deciding how to solve them before rushing in like a fool.

You need to cross a gaping chasm; there is a monolith nearby. By shooting the monolith you can build a bridge; knocking it over with your tank yields more points.

Changing one thing – such as shooting a block, may affect another – opening a door for example. By learning and mapping, you will conquer this game. What's more you will want to.

The packaging aspires to the standards of Rainbird or Microprose. There is a novella with crisp artwork and a keyguide. The program is novella protected – a laudable form of piracy protection.

It falls a little short, the story in the novella is not much cop (sorry Ian), but the actual instructions are fine.

Driller will do well because it requires such a wide range of skills. In fine Incentive tradition the program works better on the Amstrad than any other 8 bit machine. A future classic.







**Author: Incentive**
**Price: £17.95 disc, £14.95 tape**

**Nigel**

Nigel: WHEN Elite first came out it was fashionable to run down the Novella. I felt this was just the sci-fi buffs being arrogant. The Driller story is poor – who'd send a rookie on a vital mission? An unnecessary lack of precision in a well written and designed game.

Buy it for the disc, and forget the book.

19/20

**Colin**

I WAS worried. After all the hype, Driller could not possibly be as good as Incentive claimed. So the Freescape demo was impressive, but other things were going to slow the whole shebang down.

It is thanks to a good awareness of these problems that the game design pulls it off. Freescape is clever, but it is Driller which makes it a good game.

18/20

**Liz**

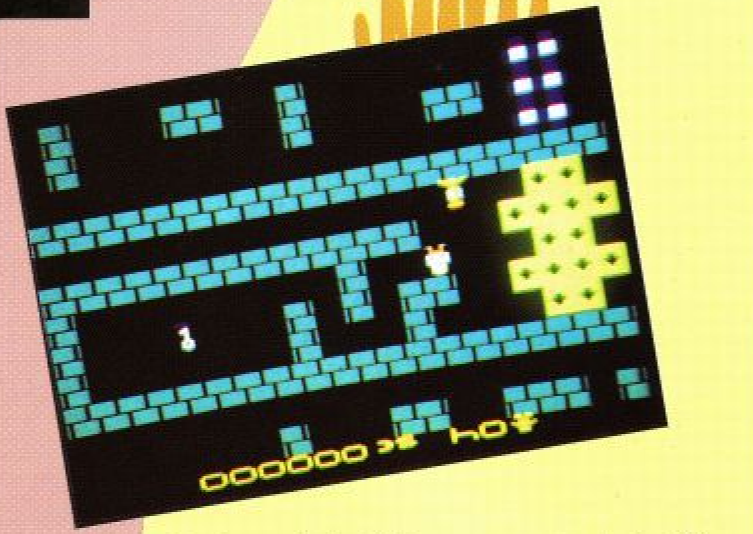
DRILLER has got it all, novella protection, 3D solids, an exploding moon, a new programming technique. It's enough to make you expect a pretty naff game.

It is not the most exciting collection of magnetic pulses to find their way on to disc, it's an absorbing and playable game, but nothing is worth all that hype, particularly something which is quite cerebral.

16/20

REVIEW

## Saracen



I SAY chaps. Lets go and rough up some foreigner chappies. And let's do it 'cos they're living in the Holy Land.

On such shaky grounds great history is made. More precisely the campaigns against the Saracens, vinegary nomads who stomped around the far end of the Med at about the far end of 10 centuries ago *(historians don't write in – Ed)*.

As they were Moslems, and thus of another religion that felt it had a claim on the area, they were fair game for the devout swordslingers of Europe. One such warrior was Ilan. His mission – and yours – is to seek out the Chief of Saracens and destroy him.

The momentous encounter between Ilan and the CoS takes place in mazes of mind-boggling complexity and difficulty. Astute people might be able to spot the point where medieval meddlings leave off and the modern maze game starts up. In these convoluted corridors the traditional problems confront the uncaped crusader.

Let's start at the top. The standard equipment of a Saracen-hunter such as Ilan is one longbow. Not a lot against a castle of fanatical guards, bombs and other, as yet undescribed but guaranteed extra-nasty devices. However, the combination of bow, archer and arrows is much more effective than one might expect.

Take, please, the bombs I revealed to you earlier. These go off (due to a Christian Proximity Fuse) when our hero wanders past. But, with a well-aimed arrow, they can be persuaded to prematurely explode, and take out any misplaced guards that are unfortunate enough to be nearby. The same technique, slightly modified, is needed to get rid of that stubborn CoS. Details later.

Arrows can also kill guards directly, shatter fragile constructs, and wall in enemies when used to shoot the Wall Maker. This machine, beautifully depicted as a spiral, er, spiral, produces a red-brick wall across the passageway to keep undesirable people and objects well away.

Since these arrows are the only weapon in the hands of the forces of righteousness, the force is a little dismayed to find that they run out. Ooops. Luckily, there are arrow makers, which if shot turn into four arrows. You can imagine the problems encountered if the last missile is unleashed at anything else...

What else? Well, there is the usual range of locked, magic and one-way doors, keys, balls (cannon), safety zones where nothing much happens and grenades.

What else can a man say about a maze game that hasn't been said before? Added Turks? More and stonier walls? As the creative juices run dry (must brew another batch), all that one can say is that if you must find out, a budget game makes it fairly painless. Unless you wander past a bomb.

**Author: Americana/ Mastertronic**
**Price: £1.99**

Nigel

The game has that subtle quality of addictiveness and simplicity that can – occasionally – transcend the worst pictures. Everything else is grotesquely horrible, but the game is a hooker. I wish I knew how they did it...

15/20



**How to Join: See Page 66**

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# JACK THE NIPPER II – COCONUT CAPERS

ALRIGHT you horrible lot. This is entirely your fault. If you hadn't gone out and bought Jack The Nipper in such numbers, Gremlin wouldn't have succumbed to the temptation to produce JTN2 - Coconut Capers. OK, so perhaps it was the Spectrum mob that did it, but whoever it was had better own up.

I cannot tell a lie. I liked JTN. So the second in the series was awaited with interest at Dunhackin. In this sequel, the lad has baled out over a jungle in transit to Australia, to where a disgruntled government has deported him (wish they'd deport me).

First priority: Stay on the run from Mum and Dad. Second priority: cause as much mischief as possible. These two priorities are, of course, as interchangeable as the wee horror's nappies.

But what childish misdemeanours can be perpetrated in the dense African jungle? The lad has two pockets, the weapons stash and the holder for naughtiness items.

Weapons – like the blowpipe – can be used against all and sundry, while naughty items have more specific and ingenious uses which have to be discovered. What can the onion be used for, when the nearest Big Mac is 3,000 miles away?

Other mysteries crowd in. The whole set of jungle denizens are clad in shades, and an elephant in dark glasses is summat else. The standard batch of fluttering, crawling, hissing and deadly things prowl the tree-lined pathways Jack treads. Or should that be toddles... Anyway, there are also a good number of jungle creepers, which the kid can swing from to avoid any exceptionally infested crocodile ponds.




It's worth mentioning at this point the glorious musical effects that are scattered throughout the game; a short burst of Puppet on a string accompanies a successful grab at a rope, and many other tunes await the explorer who knows his or her music.

The titular coconuts are used to discourage the natives depicted in stereotypical Victorian fashion with bones through their hair – and others by dropping them from on high. Unlike the original JTN, there's no concept of nappy rash as the game progresses, rather a score (for puzzles solved and progress made) and a naughtyometer (for havoc wreaked). The game can be played for a maximum on either front. I get the feeling that the Gremlins would rather you played it for the latter, first 'cos it's more fun and second 'cos there's the offer of a cheat sheet to help you achieve still greater wayward ratings.

The usual care seems to have been taken by the Sheffield lot with graphics and ancillary items. There's a lot of jungle, and usually something new waiting just at the point where you starts to wonder whether everything's been seen.

It's a different game from Jack The Nipper I, more complex and more colourful, but seems to keep the good points of the original. For once, a sequel that presents a whole new set of puzzles while keeping the spirit of what's gone before.

*Author: Gremlin*
*£9.95 tape £14.95 disc*




**Nigel**

JACK lives on, and the experience his parents have garnered since the first issue shows in the smoother action, the better graphics and the depth of play. I really enjoyed this game, even if it's another in an infinite line of platform-based concepts.

What's more, the Amstrad version seems to be more than just a Spectrum conversion, which is markedly better than Jack One. Should keep you busy.

19/20

**Colin**

I'D have assumed that JTNII would look a bit like JTNI. I'd have been wrong. This looks more like a Mikro Gen game. Not that that is a bad thing.

If you want to be analytical and boring you could complain that the sprites are monochromatic and that it looks a lot like a Spectrum game. Jack saves himself by being a cute little kid. All in all I preferred the precursor.

15/20

**Liz**

YOU Tarzan, me Liz. An adequate jungle romp which reminded me of three weeks in paradise. I hope its the last we see of the little lad.

Perhaps there will be space for Jack the juvenile delinquent, or Jack the young man in a few years time, but meanwhile this stands a good chance of looking dated and cashing in on the sequel bandwagon.

13/20

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# Assembly point

## Or Stix II: The Sequel. It's typing-fingers-at-the-ready time as Peter Green presents the second half of a marathon machine code game

THE remaining source code for the Stix game, in Listing 1, covers the routines for converting screen inks from one value to another, the filling routine that either locates the stix or colours the empty block, the random number generator and randomising routines for the stix's position and velocity, and the routines for stepping from one screen pixel to the adjacent ones.

Four different routines scan through the screen memory, each looking for pixels set to one particular ink and converting them into pixels of a different ink.

I used four colour-specific routines instead of a single general purpose one in order to speed up the program operation – the inks to test for, and the ones to use instead, are hard-coded into the program instead of being accessed as variables. Also this means that virtually all the variables can be held in the Z80 registers at once, which also makes for faster-running code.

### A faster fill

The original fill was very slow because, in order to dovetail totally with software using the existing Amstrad routines, it worked with user coordinates and CALLs to the firmware. Each firmware call has a built-in time overhead because of the code to switch the lower rom in and out of the memory map.

Also the firmware calls are general purpose so, for example, the GRA–TEST–RELATIVE routine has to find out what mode the screen is in, what the pixel-to-byte mapping is for that mode, the user-coord-to-pixel conversion factor and so on.

Since Stix runs in Mode 0 only, we know these things in advance and can make savings which individually seem small, but make a big overall difference because they occur in a loop which may be executed many hundreds of times.

First, instead of user coords (which are stored as two lots of two bytes) we can represent pixels by their screen address and a one-byte pixel mask for that particular address. This means one byte less to PUSH and POP from the user stack.

It also frees an eight-bit register so that the variables *top* and *bottom* can be stored on the Z80, where they can be accessed faster than in memory.

The background colour that we are filling over is always ink number zero, so we save the time normally needed to decode the ink pattern and make a comparison. This is because the AND operation that masks the pixel sets the zero flag if and only if the pixel was ink 0. Similarly we can code the fill colour into the program directly (it's always ink 7) instead of fetching that from a memory variable.

Finally, at the two places where we use the code for decoding a pixel pattern in a screen byte to an ink number, the program instructions are repeated (with different labels, of course) instead of being split off into a subroutine, as would be normal, efficient coding practice. This increases the size of the program slightly but saves the delay of two CALLs and RETs on every pass through the loop.

### Decoding de inks

Figures 1 and 2 try to explain the mysteries of Mode 0 ink mapping. A screen byte represents two pixels – the left pixel uses bits 1,5,3,7, while the right pixel is bits 0,4,2,6. The letters pqrs represent the four binary bits of the ink number.

Obviously the bit mask for each pixel can be obtained from the other by rotating the mask by one pixel (in either direction) - this is used a lot in this program.

Let ink = pqrs (four-hit binary number)
Then the left pixel is mapped as:

| s | | q | | r | | p | |
|---|---|---|---|---|---|---|---|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

and the right pixel as:

| | s | | q | | r | | p |
|---|---|---|---|---|---|---|---|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

*Figure I: Mode 0 screen mapping*

Converting a bit pattern into a Mode 0 ink number is a little tricky, because the Amstrad not only stores the ink in the screen memory as every other bit in a byte, but the order of the middle two bits is reversed.

The code for this is shown just after the label .wend2, and is a little sneaky. What it does, after re-arranging the required four bits so that they are adjacent, is to generate an XOR inversion mask whose value depends on whether the bits labelled q and r are the same, or different.

Suppose q and r are the same. Then it doesn't matter whether they are swapped or not, so the inversion mask is all zeroes. XORing a byte with zero leaves all the bits unchanged, so the result is the ink number we require.

However, if q and r are different, then one of them must be a 1 and the other a zero. Now swapping over two bits in the middle of a byte is a (relatively) time-consuming operation involving a lot of shifts, but if we simply invert both the bits, by XORing them with 1s, we get the same result in a single logical operation. In this case the inversion mask has 1s for the two bits to be swapped, and 0s everywhere else.

Many extra features could be added to this basic game. The high score routine from the July '87 issue could be incorporated. Extra lives could be given for every 1000 points. Bonus points could be scored for completing a level quickly.

Since it gets harder to avoid the stix as the area fills up, double or treble points could be awarded for every percent scored over 75 per cent at the end of a level.

Off you go . . .

| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | |
|---|---|---|---|---|---|---|---|---|---|
| Left pixel | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | = &AA |
| Right pixel | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | = &55 |

*Figure II: Mode 0 pixel masks*

```
.chg_7_to_0
;----------------------------------------------------
; Scan playing area and convert any pixels in ink 7 to ink 0
;----------------------------------------------------

LD HL,&E991     ;Screen address of top left of play area
LD C,151        ;Number of rows

.chg70a
LD B,77         ;Bytes per row
PUSH HL         ;Save line start

.chg70b
LD A,(HL)       ;Get screen byte
LD D,A          ;Store it

AND &AA         ;Mask off left pixel
CP &A8          ;Encoded ink 7?
LD A,D          ;Fetch screen byte to A
JR NZ,chg70c    ;Skip if not ink 7
AND &55         ;Else change pixel to ink 0
LD D,A          ;Put back into D

.chg70c
AND &55         ;Mask off right pixel
CP &54          ;Encoded ink 7?
LD A,D          ;Fetch screen byte to A
JR NZ,chg70d    ;Skip if not ink 7
AND &AA         ;Else change pixel to ink 0

.chg70d
LD (HL),A       ;Store screen byte
INC HL          ;Point to next screen byte
DJNZ chg70b     ;Loop until whole screen line done
POP HL          ;Fetch start of line
CALL line_down ;Step down a line
DEC C
JR NZ,chg70a    ;Loop until all rows done
RET

.chg_7_to_2
;----------------------------------------------------
;Similar to above routine except counts changed pixels
;----------------------------------------------------

LD HL,&E991
LD C,151

.chg72a
LD B,77
PUSH HL

.chg72b
LD A,(HL)
LD D,A

AND &AA
CP &A8
LD A,D
JR NZ,chg72c
AND &5D         ;Change left hand pixel ink 7 to ink 2
LD D,A
INC IX          ;and count the pixel

.chg72c
AND &55
CP &54
LD A,D
JR NZ,chg72d
AND &AE         ;Change right hand pixel ink 7 to ink 2
INC IX          ;Count this pixel too

.chg72d
LD (HL),A
INC HL
DJNZ chg72b
POP HL
CALL line_down
DEC C
JR NZ,chg72a
RET

.chg_5_to_1
;----------------------------------------------------
;Same as above routine except changes ink 5 to ink 1
;----------------------------------------------------

LD HL,&E991
LD C,151

.chg52a
LD B,77
PUSH HL

.chg52b
LD A,(HL)
LD D,A

AND &AA
CP &A0
LD A,D
JR NZ,chg52c
AND &DF
LD D,A
INC IX          ;Change left pixel ink 5 to ink 1 and count it

.chg52c
AND &55
CP &50
LD A,D
JR NZ,chg52d
AND &EF
INC IX          ;Change right pixel ink 5 to ink 1 and coun  it

.chg52d
LD (HL),A
INC HL
DJNZ chg52b
POP HL
CALL line_down
DEC C
JR NZ,chg52a
RET

.chg_5_to_0
;----------------------------------------------------
;Change ink 5 to ink 0 but don't bother counting
;----------------------------------------------------

LD HL,&E991
LD C,151

.chg50a
LD B,77
PUSH HL

.chg50b

LD A,(HL)
LD D,A

AND &AA
CP &A0
LD A,D
JR NZ,chg50c
AND &55
LD D,A

.chg50c
AND &55
CP &50
LD A,D
JR NZ,chg50d
AND &AA

.chg50d
LD (HL),A
INC HL
DJNZ chg50b
POP HL
```

```
CALL line_down
DEC C
JR NZ,chg50a
RET

.rnd_pos
;-----------------------------
;Set stix to random x,y coords
;-----------------------------

CALL rnd        ;Set A to random number, 0 - &FF
LD HL,&9304     ;H = maximum valid x position, L = minimum
AND &FE         ;Force A even (so initial stix always uses stix_pic1)
CALL A_range    ;Check if A lies within valid range
JR NC,rnd_pos   ;Loop back until find valid random x
LD E,A          ;Save it in E

LD (x_stix),A   ;and store it

.rp1
CALL rnd
LD HL,&960C
CALL A_range
JR NC,rp1
LD L,A
LD (y_stix),A           ;Do same for y coordinate (though need not be even)

LD D,0
LD H,0
CALL SCR_DOT_POSITION ;Now calculate screen address for top left of stix
LD (stix_addr),HL     ;Store it
RET

.rnd_vel
;--------------------------------------------
;Set initial stix velocities to random values
;--------------------------------------------

CALL rv1        ;Set random x velocity
JR rv2          ;Set random y velocity

.chg_vel        ;Change x or y velocity at random (gives irregular stix
CALL rnd        ;movement). First generate a random number in A
CP 240          ;Quit if less than 240, so change is made only
RET C           ;once in every 16 calls to this routine

CALL rnd        ;Generate a random number
RRCA            ;Odd or even?
JR C,rv2        ;Odd means change y velocity

.rv1
CALL vel_com ;Else change x velocity. Get random number, +1 or -1

LD (x_vel),A ;Store new x velocity
RET
.rv2            ;Exactly same as above routine but for y
CALL vel_com
LD (y_vel),A
RET

.vel_com
CALL rnd
RRCA            ;LSB to carry
SBC A,A         ;A = 0 (if carry clear) or &FF (if carry set)
OR 1            ;Force LSB to 1, so A = +1 or -1 as required
RET

.rnd
;-----------------------------------------------------
; Get random number in A (Courtesy of Dick Sargent)
;-----------------------------------------------------

LD HL,rseed             ;Point to random number seed
LD A,R                  ;Random number from refresh register
ADD A,(HL)              ;Add to rseed
LD (HL),A               ;Store new rseed
RET
```

```
.A_range
;---------------------------------------------
; Return with carry set if and only if L <= A < H
;---------------------------------------------

CP H
RET NC ;Exit with carry clear if A >= H
CP L
CCF     ;Complement the carry flag, so that exit
RET     ;with carry clear if L > A, carry set if L <= A

.findstix        ;(based on fill routine previously published)
;----------------------------------------------------------
;Entry; C=mask for start pixel
;       HL=screen address of start pixel
;Exit;  Only IX preserved - carry clear if stix found
;----------------------------------------------------------

LD IY,stack-1     ;LET stack_pointer=0
CALL push_user    ;PUSH start_C and start_HL

.while1
PUSH IY
POP HL            ;Copy user stack pointer to HL (via machine stack!)
LD DE,stack
OR A              ;Clear the carry flag
SBC HL,DE
JP C,wend1        ;Exit WHILE1 if stack_pointer=-1, ie user stack empty
LD H,(IY+0)
DEC IY
LD L,(IY+0)
DEC IY            ;Else POP address
LD C,(IY+0)
DEC IY            ;POP mask

.while2
RRC C             ;Rotate mask right

JR NC,w2a         ;No carry means still in same screen byte
INC HL            ;Else step to next screen byte on right

.w2a
LD A,(HL)         ;Get screen byte
AND C             ;Mask off required bits
JR Z,while2       ;IF TESTR(dx,0)=background_colour
                  ;then goto WHILE2 as per normal WHILE construction

.wend2            ;ELSE come here when WHILE2 conditions are FALSE
BIT 7,C           ;Left or right pixel?
JR NZ,w2b         ;If left, we want bits 1,5,3,7
RLCA              ;Else move 0,4,2,6 to 1,5,3,7

.w2b              ;So bit pattern of interest in A is s0q0r0p0
LD DE,4           ;Loop count (four bits to process)

.w2c
RRCA
RRCA              ;Shift even bit right from A into carry
RL D              ;Then shift it left into D
DEC E
JP NZ,w2c         ;Loop four times, exiting when E = 0

LD A,D            ;Here A = D = 0000prqs
RRCA
RRCA              ;Move q to carry, r to LSB of Areg
ADC A,E           ;A = A + 0 + carry, ie LSB = r + 0 + q
RRCA              ;Here carry = q+r
SBC A,A           ;So Areg = 0 if q=r, else Areg = &FF
AND 6             ;Keep mask for q and r only
XOR D             ;Invert q and r bits if q<>r, else don't,
                  ;converting encoded ink to ink number

CP 7              ;Check if exit caused by hitting a pixel in the stix
RET NC            ;Return with carry clear if found stix

RLC C             ;Else need to rotate mask left to last valid pixel
JR NC,w2d         ;No carry means still in same screen byte
DEC HL            ;Else step to next screen byte on left
```

```
.w2d
LD B,3              ;LET top=1, LET bottom=1 (bits 1 and 0 of B)

.while3
LD A,(HL)           ;LET A=colours at current cursor position
AND C               ;IF TESTR(0,0)<>background_colour (0)
JP NZ,wend3         ;THEN quit while3 loop

LD A,&FC            ;ELSE plot pixel. Get encoded ink 7
AND C               ;Mask off bits for required pixel
OR (HL)             ;Include the bits for the other pixel in the byte
LD (HL),A           ;and put back the screen byte, thus PLOTting the pixel

PUSH HL             ;Save screen address
CALL line_up        ;Step screen address up a line
LD A,(HL)           ;Get colours of pixels above current pixel
POP HL              ;Restore old screen address
AND C               ;LET A=TESTR(0,1)
JR Z,check_top      ;IF test_colour=background_colour THEN check top

SET 1,B             ;ELSE LET top=1
JR check_below      ;and skip over code for first IF TRUE

.check_top
BIT 1,B
JR Z,check_below    ;IF NOT (top=1) THEN check line below

PUSH HL             ;ELSE save screen address
CALL line_up        ;Step screen address up a line
CALL push_user      ;Push mask and address on user stack
POP HL              ;Restore old address
RES 1,B             ;LET top=0
.check_below
PUSH HL             ;Save screen address
CALL line_down      ;Step screen address down a line
LD A,(HL)           ;Get colours of pixels below current pixel
POP HL              ;Restore old screen address
AND C               ;LET A=TESTR(0,-1)
JR Z,check_bottom   ;IF test_colour=background_colour THEN check bottom

SET 0,B             ;ELSE LET bottom=1
JR move_left        ;and skip over code for first IF TRUE

.check_bottom
BIT 0,B             ;IF NOT (bottom=1)
JR Z,move_left      ;THEN move cursor left

PUSH HL             ;ELSE save screen address
CALL line_down      ;Step screen address down a line
CALL push_user      ;Push mask and address on user stack
POP HL              ;Restore old address
RES 0,B             ;LET bottom=0

.move_left
RLC C
JR NC,ml1
DEC HL              ;Move left by 1 pixel
.ml1
BIT 7,C             ;Left or right pixel?
JR NZ,ml2           ;If left, we want bits 1,5,3,7
RLCA                ;Else move 0,4,2,6 to 1,5,3,7

.ml2
LD DE,4             ;Next block of code identical to ink decode above

.ml3
RRCA
RRCA
RL D
DEC E
JP NZ,ml3

LD A,D
RRCA
RRCA
ADC A,E
RRCA
SBC A,A
AND 6
XOR D
```

```
CP 7                ;Check if exit caused by hitting a pixel in the stix
RET NC              ;Return with carry clear if found stix
JP while3           ;Loop back as per normal WHILE construction

.wend3              ;Come here when WHILE3 conditions are FALSE
JP while1           ;Else loop back as per normal WHILE construction

.wend1              ;Come here when WHILE1 conditions are FALSE
RET                 ;Carry is set to flag "stix not found" so just quit


.push_user
PUSH HL             ;Save HL
PUSH IY
POP HL              ;Copy user stack pointer to HL
LD DE,stack+256-3 ;Make sure room for three bytes on 256-byte user stack


OR A                ;Clear the carry flag
SBC HL,DE           ;Do a 16-bit compare
POP HL              ;Restore HL
RET NC              ;Quit if no room on stack

INC IY
LD (IY+0),C         ;ELSE PUSH mask on user stack
INC IY
LD (IY+0),L
INC IY
LD (IY+0),H         ;and PUSH screen address on user stack
RET

.line_up
;------------------------------
; Step screen address up a line
;------------------------------

LD DE,&C800 ;One screen line offset
OR A        ;Clear the carry
SBC HL,DE   ;Step up one line but as if screen address in lower 16K
SET 7,H
SET 6,H     ;Reset address to top 16K without altering flags
RET NC      ;NC means address OK
LD DE,&4F   ;Extra offset of &50 (but must allow for the set carry)
SBC HL,DE   ;HL = HL - &4F -1
RET

.line_down
;--------------------------------
; Step screen address down a line
;--------------------------------

LD DE,&800  ;Usual "screen line down" code
ADD HL,DE
RET NC
LD DE,&C050
ADD HL,DE
RET

.left
;------------------
; Step left a pixel
;------------------

RLC C  ;Rotate pixel mask left
RET NC ;If no carry, still in same screen byte
DEC HL ;Else moved from left pixel in one byte to the right
RET    ;pixel in the previous byte, so decrement the address

.right
;-------------------
; Step right a pixel
;-------------------

RRC C  ;Rotate pixel mask right
RET NC ;If no carry, still in same screen byte
INC HL ;Else moved from right pixel in one byte to the left
RET    ;pixel in the next byte, so increment the address
```

```
.gra_test_relative
;------------------------------------------
; Entry; DE = address of rel_routine
;        HL = screen address
;         C = mask for pixel
; Exit;   A = ink for selected pixel in byte
;        DE corrupt
;         C = new mask
;        HL = new screen address
;------------------------------------------

CALL JPDE  ;Execute relative move routine in DE
LD A,(HL)  ;Get screen byte
BIT 7,C    ;Left hand pixel?
JR NZ,gtr1 ;Skip if yes, we want bits 1,5,3,7
RLCA       ;Else move bits 0,4,2,6 to 1,5,3,7

.gtr1
LD DE,4    ;Rest of code is same as routine in findstix

.gtr2
RRCA
RRCA
RL D
DEC E
JP NZ,gtr2

LD A,D
RRCA
RRCA
ADC A,E
RRCA
SBC A,A
AND 6
XOR D
RET        ;Return with encoded ink in A


.gra_plot_absolute
;------------------------------------
; Entry;  A = encoded ink to plot with
;        HL = screen address
;         C = mask for pixel
; Exit;  AF and B corrupted
;------------------------------------

.new_BC_p     WORD 0
.pen          BYTE 0
.trail        BYTE 0
.block_flag   BYTE 0
.block_done   BYTE 0
.player_move  WORD 0
.mip          BYTE 0
.rel_routine  WORD 0
.chk_routine  WORD 0
.frames       BYTE 0
.seconds      BYTE 0

.percent      BYTE 0
.start_HL     WORD 0
.start_C      WORD 0

.score        RMEM 3
.lives        BYTE 0
.y_stix       WORD 0
.x_stix       WORD 0
.y_vel        BYTE 0
.x_vel        BYTE 0
.stix_pic     WORD 0
.stix_addr    WORD 0
.pixels       BYTE 0

;------------------------------------------------------
; Values to which the above variables should be initialized
;------------------------------------------------------
```

```
.start
WORD &E7A8        ;HL_player
WORD &00AA        ;C_player
WORD 0            ;new_HL_p
WORD 0            ;new_C_p
BYTE &C0          ;encoded graphics pen colour (initially ink 1)
BYTE &C0          ;trail (initially ink 1)
BYTE 0            ;block_flag
BYTE 0            ;block_done flag
WORD pmove1       ;player movement routine
BYTE 0            ;mip
WORD ret_add      ;rel_routine
WORD ret_add      ;chk_routine
BYTE 50           ;frames
BYTE &30          ;seconds

BYTE 0            ;percent
WORD &E7A8        ;start_HL
WORD &00AA        ;start_C

RMEM 3            ;score
BYTE 9            ;lives
WORD 0            ;y_stix
WORD 0            ;x_stix
BYTE -1           ;y_vel
BYTE 1            ;x_vel
WORD stix_pic1 ;old stix pic for erasure
WORD 0            ;stix_addr
BYTE 231          ;pixels

.stix_pic1
BYTE &00,&82,&8A,&05,&00,&8A,&82,&8F
BYTE &0A,&00,&45,&CB,&0A,&03,&00,&0A
BYTE &41,&03,&00,&00,&05,&0B,&C7,&8A
BYTE &00,&03,&CB,&0A,&45,&00,&45,&41
BYTE &07,&0B,&00,&8A,&82,&CB,&05,&00

.stix_pic2
BYTE &00,&41,&45,&00,&0A,&45,&41,&45
BYTE &0F,&00,&00,&CF,&87,&01,&02,&05
BYTE &00,&83,&02,&00,&00,&0F,&43,&CF
BYTE &00,&01,&47,&87,&00,&8A,&00,&8A
BYTE &83,&0F,&02,&45,&41,&45,&82,&0A

.screen
TEXT 12,31,2,2,"SCORE:",13,10,10," LIVES:        00 %",0

.timer
TEXT "30",0

.inks
;-----------------------
; 16 pairs of ink colours
;-----------------------

BYTE 0,0,  24,24,20,20,6,6,4,4,24,24,0,26,0,0
BYTE 20,20,18,18,2,2,  6,6,0,0, 0,0, 0,0, 0,0

.stack
RMEM 256 ;User stack for fill start points

LD B,A     ;Save encoded ink in B
LD A,(HL)  ;Get screen byte
XOR B      ;XOR with encoded ink
OR C       ;This  sets  bits in A corresponding to pixel to plot
XOR C      ;This resets bits in A corresponding to pixel to plot
XOR B      ;This sets plotted pixel bits to encoded ink, others unchanged
LD (HL),A  ;Store byte back in screen
RET        ;and exit


;---------------------
; Actual game variables
;---------------------
.rseed        BYTE &AA

.HL_player    WORD 0
.C_player     WORD 0
.new_HL_p     WORD 0
```

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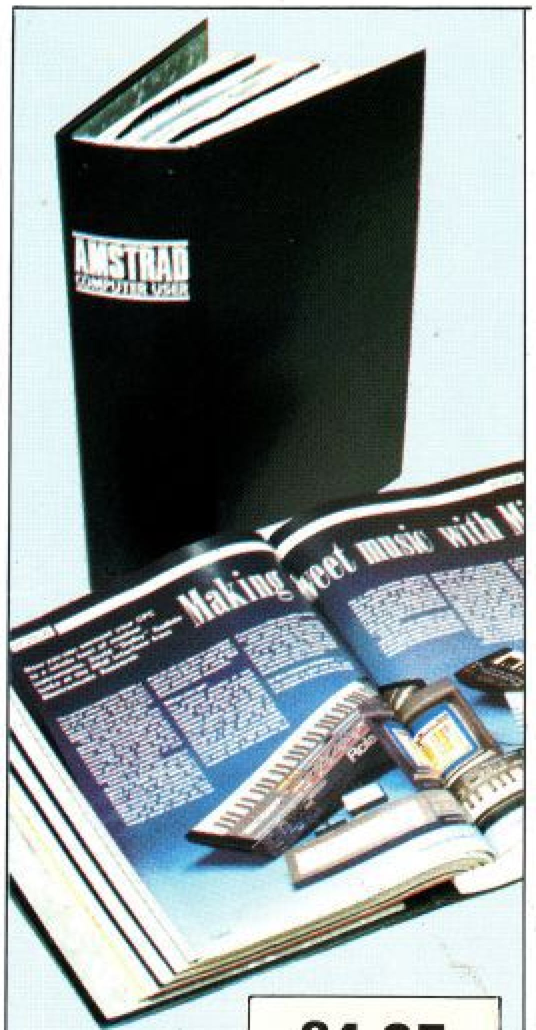
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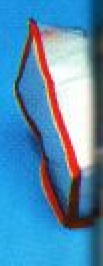
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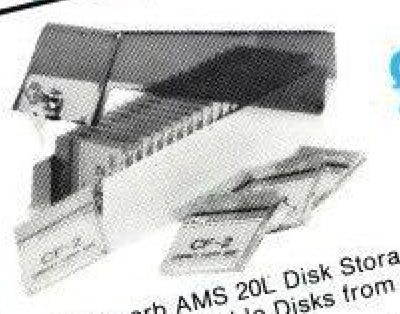
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